

EDITED BY

STEVEN NADLER

TAD M. SCHMALTZ

DELPHINE ANTOINE-MAHUT

The Oxford Handbook *of* DESCARTES AND CARTESIANISM

Preface

Edited by Steven Nadler, Tad M. Schmaltz, and Delphine Antoine–Mahut

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(p. v) Preface

The seventeenth century was a Cartesian century. From 1637, when Descartes first published a general presentation of his philosophy, along with particular applications of its scientific principles, to the early 1700s, with the rise of Newtonianism, there was hardly a corner of the Republic of Letters free of Cartesian activity of one sort or another. Its theories and methods were discussed in the academies and salons of the great cities of Europe; natural philosophers, theologians, and civil authorities debated its merits and dangers; and slowly but surely it made inroads in teaching in the college and university faculties.

Of course, not every philosopher of the time was a Cartesian. There were Cartesians, some more “orthodox” than others, but there were also Aristotelians, Platonists, Epicureans, Stoics, atomists, and skeptics. Descartes had his proponents and he had his critics (and sometimes one and the same person was both). French, Dutch, German, Italian, and English thinkers of various religious persuasions—such as Malebranche, La Forge, Cordemoy, Desgabets, Rohault, Arnauld, Geulincx, Clauberg, and Régis—took it upon themselves to defend, extend, modify, and in some cases even improve on Descartes’s ideas. Others, including Hobbes, Pascal, Gassendi, More, and Leibniz—many of whom shared some of Descartes’s basic commitments, such as the rejection of Scholastic metaphysics and a devotion to mechanistic explanations in physics—nonetheless set themselves apart from, and in some cases even opposed, the Cartesian program.

Our goal in this volume is to present the Cartesian century in all its rich variety. The first section is devoted to the many facets of Descartes’s own philosophical writings: his views on central topics of metaphysics, epistemology, physics, physiology, psychology, ethics, and aesthetics, as well as the biographical and intellectual contexts of his work. This section will include parts of Descartes’s philosophy that are only infrequently studied by scholars (for example, his theory of music) or are thought to be almost entirely absent from his thought (such as politics). The chapters in the second section are concerned with contributions made by Descartes’s more or less orthodox partisans, some of whom are

not prominent in the literature. Also covered are the various philosophical, scientific, and theological problems that confronted Cartesianism and the diverse ways in which these problems were addressed. The third section covers Descartes's critics, and its chapters provide insight not only into their various philosophical, theological, or political objections to his philosophy, but also into what they understood Cartesianism itself to be.

(p. vi) We intend the volume to provide the reader—whether a seasoned scholar, a graduate or undergraduate student, or simply someone with a general interest in the history of philosophy—with both a useful and illuminating overview of an essential dimension of what is arguably philosophy's greatest century, and detailed studies of the particular thinkers and ideas that contributed to its vitality.

Steven Nadler

Tad M. Schmaltz

Delphine Antoine-Mahut

Contributors

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(p. xi) Contributors

Fred Ablondi,

Hendrix College

Igor Agostini,

University of Salento

Jean-Pascal Anfray,

École Normale Supérieure (Paris)

Delphine Antoine-Mahut,

École Normale Supérieure de Lyon

Contributors

	Dan Arbib, École Normale Supérieure (Paris)
	Roger Ariew, University of South Florida
	Jean-Robert Armogathe, École Pratique des Hautes Études—Sorbonne (Paris)
	Jean-Christophe Bardout, University of Rennes 1
	Giulia Belgioioso, University of Salento
	Erik-Jan Bos, Radboud University Nijmegen
	Hélène Bouchilloux,

Contributors

	University of Lorraine
	Claudio Buccolini, National Research Council, Istituto per il Lessico Intellettuale Europeo e Storia delle Idee
	Hadley Cooney, University of Wisconsin—Madison
	Frédéric de Buzon, University of Strasbourg
	Antonella Del Prete, Tuscia University
	Mihnea Dobre, University of Bucharest
	Philippe Drieux,

Contributors

	Rouen University
	Philippe Hamou, Paris Nanterre University
	Gary Hatfield, University of Pennsylvania
	Helen Hattab, University of Houston
	Michael W. Hickson, Trent University
	Sarah Hutton, University of York
	Andrew Janiak, Duke University

Contributors

(p. xii) **Douglas Jesseph**,

University of South Florida

Denis Kambouchner,

Pantheon—Sorbonne University (Paris 1)

Thomas M. Lennon,

University of Western Ontario

Antonia LoLordo,

University of Virginia

Gideon Manning,

Claremont Graduate University

Sébastien Maronne,

University of Toulouse

Christia Mercer,

Contributors

	Columbia University, New York
	Denis Moreau, University of Nantes
	Steven Nadler, University of Wisconsin—Madison
	Lex Newman, University of Utah
	Lawrence Nolan, California State University—Long Beach
	Marie-Frédérique Pellegrin, Jean Moulin University Lyon 3
	C. P. Ragland, Saint Louis University

Contributors

Alice Ragni,

University of Luzern

Jasper Reid,

King’s College London

Laurence Renault,

Paris—Sorbonne University/Paris—Sorbonne University Abu Dhabi

Mitia Rioux-Beaulne,

University of Ottawa

Sophie Roux,

École Normale Supérieure (Paris)

Todd Ryan,

Trinity College, Connecticut

Contributors

Andrea Sangiacomo,

University of Groningen

Tad M. Schmaltz,

University of Michigan—Ann Arbor

Lisa Shapiro,

Simon Fraser University

Justin E. H. Smith,

Paris Diderot University (Paris 7)

Wiep van Bunge,

Erasmus University Rotterdam

Han van Ruler,

Erasmus University Rotterdam

Theo Verbeek,

Contributors

	Utrecht University

Abbreviations of Works by Descartes

Edited by Steven Nadler, Tad M. Schmaltz, and Delphine Antoine–Mahut

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(p. xiii) Abbreviations of Works by Descartes

AT	*Oeuvres de Descartes*, edited by Charles Adam and Paul Tannery, 11 vols. Paris: J. Vrin, 1964–71.
CSM	*The Philosophical Writings of Descartes*, translated by John Cottingham, Robert Stoothoff, and Dugald Murdoch, 2 vols. Cambridge: Cambridge University Press, 1984–5.
CSMK	*The Philosophical Writings of Descartes*, vol. 3 (Correspondence), translated by John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny. Cambridge: Cambridge University Press, 1991.
S	*The Correspondence Between Princess Elisabeth of Bohemia and René Descartes*, edited and translated by Lisa Shapiro. Chicago: University of Chicago Press, 2007.
V	*The Passions of the Soul*, edited and translated by Stephen H. Voss. Indianapolis: Hackett Publishing, 1989. (p. xiv)

Philosopher Defying the Philosophers: Descartes’s Life and Works

Han van Ruler

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Abstract and Keywords

Descartes’s life was marked by a series of remarkable innovations in mathematics, science, and philosophy, as much as by the philosopher’s frequent changes of environment. In 1628 he returned to the Netherlands, where he had begun his philosophical journey ten years earlier, and where he was soon to embark on writing a mechanistic system of the world. Shocked by the Galileo affair, he would initially publish only “samples” of his own way of thinking, but fierce engagement in philosophical controversy ultimately made him abandon the idea of trying to convince academics. Whereas his publications continued to follow an erratic pattern, Descartes increasingly focused on friendships with intellectuals in high places, and all the while stayed true to the idea of reforming the sciences on the basis of inborn intellectual capacities he deemed to be custom-made for uncovering the nature of reality.

Keywords: biography, rejection of forms, Netherlands, epistemological fitness, Elisabeth

(p. 3) THE winter night dark with icy winds, only a faint glow shines from the smart new houses on Westermarkt, shedding light on a small man, quite well dressed, who steps outside into the cold.Hail comes down so mercilessly that no one else seems eager to go out at this late hour, but instead of turning up his collar and disappearing into the dark, the man hardly moves. Occasionally, he catches a hailstone, and either diligently observes it, or rubs his gloves, to look back up. So enmeshed is he in his erratic behaviour that the wintry conditions seem not to bother him. As hail turns to snow, his attention to what he catches from the sky merely intensifies, and it is only after the last flakes have fallen that we see him hurrying back inside.

Descartes would be out on the street again the next morning, Monday 5 February 1635 (*Meteors*, AT VI.308). The cold had now become so extreme that little sheets of ice were glistening in the air, tumbling down like snowflakes. Continuing all day, as well as the next, to study alternating precipitations of hail and snow, we may imagine him to have gone back inside now and again, quickly setting himself down to describe every type of

stone and flake he had seen or taken with him—or to observe what happens when they melt. We may also presume that, though exhibiting utmost patience and care in his methodical way of going about, Descartes’s head was spinning with the foresight of being able to explain all the processes of alternate congelation and liquefaction he conjectured to have led to the formation of these various types of snow. His vivid imagination already having given him the clues, he cannot but see his thoughts confirmed every time he catches another tiny constellation of ice.

(p. 4) On a less conscious level, Descartes’s eagerness to seize the opportunity and study what was falling down from the clouds this Amsterdam winter must have been driven by more troubled thoughts. With a view to the future, there was still so much to do if he was ever to pursue his plan to present to the public some specimens of his new way of thinking. With a view to the past, every new finding was a painful reminder of earlier enthusiasms and failures, as well as of successes secretly booked that he had still not been self-assured enough to publish. Nor did he ever underestimate the potential repercussions his findings might meet in philosophical circles—the shock possibly outweighing all the recent strife over the movement of the Earth.

For the moment, welcome winter storms blew away such worries and offered exactly the kind of observations our inquisitive snow observer deemed crucial for the tract on meteorology that was to form part of his longer-term project: to formulate a whole new way of looking at nature, and thus to alter the course of what he had come to describe for himself as “the sciences”.

1. Breaking with the Past

Two months later, the long winter just beginning to make room for some signs of spring, Descartes’s confidence was given a final push by three happy mornings spent in the company of a man in high office, the Lord of Zuilichem, better known today as Constantijn Huygens (1596–1687), young Christiaan’s father, and secretary to Frederick Henry, the Prince of Orange and Head of State. As Descartes would explain to a Leiden peer, the mathematician and arabist Jacob van Gool (1596–1667), his talks with Huygens had seemed to provide evidence for a transmigration of souls, so much had the Lord of Zuilichem constantly taken the words out of his mouth as they were discussing Descartes’s theory of perception (Descartes to Golius, 16 April 1635, AT I.315–6). The impression had been mutual: remarking that Descartes’s ideas struck him as uncommonly persuasive, Huygens offered his support in making them public. Descartes, in turn, invited Huygens to read and correct not only his treatise on optics, but also the treatise on meteorology, as well as a “preface” he was planning to write (Descartes to Huygens, 1 November 1635, AT I.591–2/CSMK 50), thereby finally committing himself to fulfil the daring promise he had been making for some fifteen years now: to make public his theoretical alternative to the body of knowledge he had been schooled in.

Ultimately adding a mathematical work as well, Descartes was able to present to Huygens on 12 June 1637 a first copy of three scientific essays bound together with a short introductory *Discourse* about the method he had followed (Descartes to Huygens, 12 June 1637, AT I.385/CSMK 59–60). This *Discourse on Method* (*Discours de la méthode*) has for centuries been seen as a foundational treatise in the history of modern thought, but it was the three *Essays* accompanying the *Discourse* in its original form which, according to Descartes, illustrated the pre-eminence of his method. One can hardly overestimate the historical significance of these now forgotten tracts: the *Dioptrics* (p. 5) (*Dioptrique*) offering the first formulation in print of the law of refraction, besides a host of subsequent findings on elliptic and hyperbolic lenses, microscopes, and telescopes; the *Meteors* (*Météores*) presenting the first complete explanation in human history of the captivating and awe-inspiring phenomenon of the rainbow,[1] as well as a broad range of speculations on the weather without the slightest reference to God; finally, the *Geometry* (*Géométrie*) that laid the foundations of analytic geometry, a science without which later seventeenth-century developments in mathematical physics would not have been possible—nor, for that matter, present-day technological gadgets in our pockets and our cars. Descartes certainly made an appearance.

Perhaps even more than his *Principia* of 1644, these *Samples of Philosophy*, as the Dutch and Latin versions of the package of *Discourse* and *Essays* would be entitled,[2] are likely to have functioned as a source of inspiration for other scientists as much as they evoked in the young Huygens an interest in mathematics, refraction, lens-grinding, the formation of snow crystals, the use of telescopes, etc. As for the introductory *Discourse*, it is easy to underestimate its relevance for the (proto-) scientific treatises that followed. Despite its jovial tone, its overly carefree prognostication of future scientific progress, and its audacious rejection of the philosophical past, the idea in itself of adding an apologetic account of what had brought him to this point is a reminder of Descartes's latent fear of raising controversy, as well as a sign of his own appreciation of the depth of his break with tradition. In addition to this, Descartes's way of explaining his "method" in the context of an autobiographical sketch was also a mark of his apparent conviction that there had been a common thread to all previous stages of his intellectual development. It had been a matter of trial and error in some ways, but he had always kept course, convinced from the start that he was onto something out of the ordinary.

2. Natures, Forms, and Qualities

At the start of the fifth part of the *Discours de la méthode*, Descartes looks back on one of his earlier, aborted, projects; the project immediately preceding his work on the *Discourse* and *Essays*. We now know this unfinished work as *Le monde*—i.e. *The World*, or *Treatise on Light*, a text that would remain unpublished throughout the course of Descartes's life. He had been working hard on it all summer and autumn of 1633 in Deventer, trying to get it finished before the end of the year. In November, he suddenly announced he had abandoned the plan (and had "almost decided to burn all [his] papers") upon having heard from Leiden or Amsterdam about the outcome of the Galileo trial

(Descartes to Mersenne, End of November 1633, AT I.270–2/CSMK 40–1). The idea (p. 6) that had been at the core of Galileo's condemnation, the question of the Earth's movement around the Sun, was a central aspect of what Descartes himself had intended to present in *The World*, and we may accordingly presume the Church's condemnation of Copernicanism to have been his main reason for deciding to leave his own system of nature unpublished. At the same time, not having been able to connect his ideas on the formation of the solar system to an account of the origin of life, Descartes was also very much aware of the fact that what he had set out to do had still been far from finished.

Four years later, he openly admitted his inability to find a link between physics and biology (AT VI.45–6/CSM I.134), but the *Discourse* offers no further specifics for his decision to present separate specimens of science instead. When he writes that there are "many questions that are being debated among the learned" with whom he has no "wish to quarrel" (*Discours*, AT VI.40/CSM I.131), we may gather there was even more to his resolution to first offer samples than Copernicanism and missing links alone. Descartes's method amounted to something that was squarely at odds with accepted ways of doing natural philosophy, and pronouncing the wish to avoid controversy had meanwhile become his favourite tactic in circumventing *metaphysical* types of debate. When, in the immediate context of mentioning his earlier project of *The World*, Descartes writes he will specifically ignore some of the things "about which they dispute in the Schools" (*Discourse*, AT VI. 43/CSM I.132), and, in the *Meteors*, that he has no aim to "break the peace with the philosophers" (AT VI. 239), he is expressing a wish simply to leave unmentioned what, in *The World*, he had still felt free more explicitly to reject: the Aristotelian notions of "(substantial) forms" and "(real) qualities".

Despite Descartes's personal prudence and enduring discretion, it was these notions of "forms" and "qualities" that were ultimately to define the philosophical battle between Aristotelianism and Cartesianism in seventeenth-century Europe. When, as a teenager, Gottfried Wilhelm Leibniz would stroll the woods of Saxony in the early 1660s, earnestly asking himself whether he would support the ancients or the moderns, he formulated the dilemma in terms of the "natures" and "substantial forms" of things that had gone lost in the modern view on nature[3]—the very same issue, that is, which the Utrecht Calvinist theologian Gisbertus Voetius (1589–1676) decided to bring up against Descartes in the early 1640s. The question was of momentous importance to early-modern culture as much as to philosophy itself. Not only did Voetius's attack on mechanicism prefigure Leibniz's later way of conceptualizing the clash—it also brought to light a smothering uneasiness with Descartes in the early 1640s that would be Leibniz's main point of concern as well: the fact that the new philosophy yielded causal metaphors totally inappropriate for understanding theological images of divine guardianship.

Descartes, accordingly, had every reason to be careful. Significantly, the first philosophical war fought over his views evolved as a result of the academic pursuits of someone rather less careful than himself. The Utrecht professor of medicine and botany, Henricus Regius (1598–1679), a naturalist in philosophy and a practicing physician of a sanguine (p. 7) psychological disposition, immediately took to Descartes's views in physiology and

natural philosophy. In class, however, he associated these with metaphysical conclusions of his own, such as that man was an *ens per accidens*—an accidental being—in other words, a contingent conglomerate of body and mind.[4] These were things not only that theologians might become concerned about, but that Utrecht students actually started rioting over, to the effect that the rector of the university was called upon to give a reaction that might "temper students in their reckless desire to discuss certain questions which threatened to draw them away from the study of theology" (Descartes and Schoock 1988: 96).[5]

Rector Gisbertus Voetius obliged by staging two days of university disputations just before Christmas 1641, aimed at restraining what he saw not as the emergence of a new philosophy, but as the recurrence of a metaphysically ineffectual way of thinking. In response to Descartes's intellectual presumption, Voetius argued there is "so much we do not know"; but as the title of his comments indicated, there was also something that should be known and accepted beforehand, namely that there are such things as "natures" and "substantial forms".[6] Undisturbed by the question of transubstantiation that would haunt Cartesians and other *novatores* in Catholic Europe throughout the century, Voetius, as a Protestant traditionalist in philosophy, was worried instead that Descartes might bereave science of what was regarded as a genuinely "causal" understanding of nature: the inner, and "substantial" way of seeing things that links every event to the identification of an individual factor of change responsible for its occurrence.[7]

Exemplifying the transition from a metaphysical to a mechanical understanding of nature, the Utrecht Crisis thus involved much more than just Copernicanism, or specific points of theological dogma or scientific methodology—and Descartes was well aware of this. If, as has rightly been said, "[the] elimination of explanations involving 'real qualities' was one of the central planks of Descartes' scientific programme" (Cottingham 1986: 7), Descartes nevertheless mounted an evasive and sometimes deeply ironical strategy when alluding to the position of "the philosophers", i.e. to the traditional way of explaining natural change. Not that he was in any doubt about the validity of his own position; indeed, Descartes's metaphysical purge had long before taken place, and the text of *The World* is very clear on this point:

> If you find it strange that […] I do not use the qualities […] as the philosophers do —I shall say to you that these qualities themselves seem to me to need explanation. (AT XI.25–6/CSM I.89)

(p. 8) Philosophers in the scholastic tradition not only identified substantial forms as factors responsible for natural change, they also considered "(real) qualities" to act as active principles in their own right. Likewise, if a substantial form was seen as the factor that determined the identity of a thing and was held to be the internal cause of its behaviour, such a form might still make use of real qualities acting as its observable instruments within their own, "accidental" sphere of being. In natural circumstances, the elusive *form* of fire, for instance, would never exercise its virtues without the help of the observable

quality of heat, which prepared and disposed "heated" parts of matter in such a way that these might become capable of receiving the form of fire themselves.[8]

Later in life, Descartes would mockingly reject the theory of qualities in a terminology echoing his own philosophical interests, and argue that there are no such things as "*real qualities*, which are attached to substances, like so many little souls to their bodies" (Descartes to Mersenne, 26 April 1643, AT III.648/CSMK 216). Even in 1643, however, he only made this remark in the less public context of a letter written to his friend Marin Mersenne (1588–1648), the Parisian friar who acted as the focus point of scientific communication lines in Europe during the second quarter of the seventeenth century. Knowing full well that his philosophical adversaries regarded qualities not just as properties, but as physical actors in their own right, Descartes, rather than to deny their existence outright, had chosen to argue that his physics had no need for such metaphysical entities.

Unbeknownst to the public, he had already played a cat-and-mouse game with the Aristotelians during the early 1630s, when he had argued in *The World* that "[m]ost philosophers maintain that sound is nothing but a certain vibration of air"—playfully proceeding to defy the Aristotelians in the next sentence by stating that "not everyone" would perhaps "wish to believe what the philosophers say", and therefore inviting the reader to move on to another example, the example of touch (AT XI.5/CSM I.82). Here, Descartes was still openly teasing the philosophers, most of whom did not at all see sound as a vibration of air. Rather, they interpreted Aristotle's explanation of sound (which spoke of a collision of two solid bodies with air getting stuck in between) as involving the occasion for a quality to arise that was internal to the "sounding" bodies or the medium.[9] Ring the bell, in other words, and it will scream—or cause the surrounding air to cry out in turn.

The World radically broke with this way of seeing things. Originally inspired by the German Jesuit Christoph Scheiner's (1537–1650) observation at Frascati, near Rome, on 20 March 1629, of five sun dogs, or *parhelia*, the report of which he had first obtained from his Walloon friend Henri Reneri (1593–1639), Descartes had started to work towards the end of summer on a text that was meant to explain this phenomenon, and to be joined to his views on the rainbow. Soon, he changed plans, opting for a treatise (p. 9) on *all* natural phenomena instead (Descartes to Mersenne, 8 October and 13 November 1629, AT I.23, 70/CSMK 6, 7). Henri Reneri, some of whose work has been associated with contemporary Baconian trends in philosophy,[10] must have acted as a welcome sounding board for Descartes on questions of natural philosophy, since whilst living in Amsterdam when he had started working on *The World*, Descartes followed Reneri to Deventer in 1632, when the latter had been appointed professor of philosophy there. Working on the *Dioptrics* and *Meteors* during alternating stays in Amsterdam and Deventer between 1633 and 1635, Descartes would, in the spring of 1635, join Reneri in Utrecht as well.

3. The A Priori Route

Yet Descartes was already applying his own way of explaining natural phenomena in other fields before he started working on *The World*. In the summer or early autumn of 1629, he had taken up residence in an upper dwelling on Amsterdam's *Kalverstraat*, or Calf Street.[11] Living in the butchers' quarter offered him an easy opportunity to study the animal body with his own eyes and to take body parts home (Descartes to Mersenne, AT II. 621), which was crucial for accomplishing his plan to add to his earlier physiological findings in optics a more general theory of physiology—a systematic account of which he would ultimately give a in the *Treatise on Man* (or *Traité de l'homme*), the twin publication to *The World* that he equally decided not to publish upon hearing of the Galileo trial. This book, too, was only published after Descartes's death, first in a Latin edition in Holland (1662) and subsequently in France (1664), where it would cause a sensation. Falling into the hands of Nicholas Malebranche in a bookshop in the Rue St Jacques, the future philosopher had a hard time reading it for sheer hyperventilation.[12] The amazing thing was, as the book's first editor Florens Schuyl (1619–1669) had put it, that Descartes had managed to explain in a mechanical way "all the functions of the human body that are normally attributed to vegetative and sensitive souls".[13] Interpreting the body, including its processes of digestion, blood circulation, and breathing, as well as its sensory and motor functions as an automated system, Descartes had been able to offer a convincing argument for what has since become an accepted belief in physiology, viz. that many of our reactions occur through an exchange of information between sensory and motor nerves over which "the soul", or human consciousness, has no power or influence. Anticipating the notion of involuntary reflexes, in other words, the *Treatise on* *(p. 10)* *Man* introduced the unprecedented idea to delete the concept of "mind", or "soul", from a naturalistic description of the workings of the body.[14]

The history of seventeenth-century science is incomplete without Descartes's scientific contributions to a variety of fields, but it is just as much incomplete without the appreciation of such colossal intellectual shifts as the animal body being stripped of its souls and the universe as a whole deprived of its forms. Active forms within inanimate nature were a counterpart to active souls in living bodies, and despite the fact that a revolution in scientific thinking was everywhere in the air in Europe around 1620, formal factors of change continued to populate not only the Aristotelian, but the entire pre-Cartesian world.[15] *The World*, by contrast, simply removed the notions of substantial forms and real qualities from its account of nature, arguing instead that all natural processes were reducible to mechanisms at the level of fundamental particles; that the resulting model of matter in motion uniquely met the philosophical requirement of explanatory efficiency; and that such explanations might be summarized in terms of "laws of nature" describing the regular behaviour of parts of matter. Not only did the book present the Sun as one of the fixed stars, and all the other stars as solar objects within their own particular systems, it also settled the norm for cosmological considerations to be conditioned on two types of reductive thinking. The first of these is what one might call a "vertical" reduction, according to which every observable state of a process should be related to the be-

haviour of the unobservable particles that explain it; the second, a "horizontal" reduction, which chronologically relates every state of a process to its earlier stages, thus ultimately leading back to an initial singularity. Introducing the hypothesis of a primordial Big Bang, Descartes never meant his *World* should replace the biblical account of *Genesis* (*Discours*, AT VI.45/CSM I.133–4), but still detracted from the relevance of holy Scripture for deciding questions of physics, since he argued his own account functioned as a better way of making the clockwork of nature intelligible (*Principles*, AT VIIIA.99–100/CSM I.256)—a fact that, as the story goes, left pious Anna-Maria van Schuurman dumbfounded (AT IV. 700–1).

To link all physical processes to a primordial stage of the universe was thus a major element in Descartes's natural philosophy, and all of his life he remained committed to the development of this idea behind *The World*. Not yet contaminated with a Kantian reading of philosophical terms, he asked Mersenne in 1630 for empirical evidence about the trajectories of comets, on the basis of which he might present his description of the (p. 11) universe in an a priori manner (AT I.250–1/CSM I.37–8). Rather than having any bearing on rationalist or empiricist methodologies, Descartes's use of the term a priori here touches simply on the possibility of deducing a variety of phenomena from an initial state, and thereby offering a would-be history of the world. The *Treatise on Man* fitted in with this broader project not only in the sense that it substituted hidden qualitative, metaphysical, and spiritual factors of change by mechanical factors, but also because its theory of physiology was ultimately to be included in the grander deduction of all physical phenomena in a single evolutionary "fable" (AT XI.31, 48/CSM I.90, 98).

Explaining the origin of life would remain Descartes's ultimate challenge. Openly admitting that there was still a gap in his cosmological account of physical nature ("I did not yet have sufficient knowledge to speak of [animals, and in particular men] in the same manner"; *Discourse*, AT VI.45/CSM I.134), he never quite figured out how this was to be done, and so *The World* and the *Treatise on Man* would remain two separate projects. His unfinished *Description of the Human Body*, on the other hand (*La description du corps humain*, AT XI.223–90/CSM I.314–24), bears witness to the fact that he never stopped trying, and was still aiming, even in the late 1640s, to fulfil his one-time promise to Mersenne to offer an account of all processes in nature *ab ovo*, as it were.

4. A Frenchman from Poitou

Part of Descartes's achievements had been inspired by a mentor he would later denounce. Having come from France to the Netherlands in early 1618 to join the army of Maurice of Orange in the southern border town of Breda, it was as a 22 year-old that he met Isaac Beeckman (1588–1637) there—a meeting on 10 November 1618 that Descartes's first biographer Daniel Lipstorp (1631–84) famously recounted as having been prompted by the public posting of a mathematical problem Beeckman translated for Descartes.[16] The two men immediately became friends, and from Descartes's letters as well as Beeckman's *Journal*, one senses the delight they both experienced at finally hav-

ing found someone with the same interests and the same creative mind. Descartes is sure to have been especially impressed by the intellectual independence of his self-employed new friend, who would turn 30 in December, and was thus eight years his senior. The oldest of Descartes's remaining letters, dated 24 January 1619, testifies to his strong emotional attachment to Beeckman:

> You ought not to think that all I care about is science, I care about you, and not just your intellect […], but the whole man. (Descartes to Beeckman, 24 January 1619, AT X, 151/CSMK 1)

(p. 12) As a New Year's gift, Descartes was to offer Beeckman in manuscript form his first piece of writing, the *Synopsis of Music* (or *Compendium musicae*, AT X.89–150), which he had been writing at the latter's request over the previous weeks; and when Beeckman left Breda in January 1619, the two men continued to correspond by letter on questions of music, mathematics, and mechanics.

Beeckman's views were to have a lasting impact on Descartes. A Calvinist Zealander of Flemish origin and a self-made engineer, Beeckman often travelled as a tradesman for his father. A career ahead of him as vice-principal of grammar schools in Utrecht and Rotterdam, and as school principal in Dordrecht, he would continue to make astronomical observations, to develop his views on questions of physics, to study lens-grinding, and to offer all sorts of technical advice both to private persons and authorities.[17] He had studied theology and medicine, but was very much inclined to rely on his own wits and always put his own experience first. Knowing everything about water pumps and windmills, he had already developed his own mechanistic model for explaining questions of physics well before he met Descartes, including ideas on air pressure, the corpuscular nature of light, magnetism, and inertia. Impressed with Descartes's work in music, Beeckman significantly suggested to Descartes to add a physical interpretation of sound, according to which pitch is determined by the frequency of strokes (*ictus*) of air hitting the ear (AT X.61–2, 110).[18] The two men also discussed questions of method, but by the time Descartes was on the point of leaving the Netherlands for Denmark and Germany, Beeckman was urging him to develop what he had recognized as Descartes's special talent: his mathematical skills.

The young genius would turn into an ungrateful pupil. Many years later, in December 1629, it may have been Descartes's impatience with the slow pace of his own work that made him initially suspicious of ideas being exchanged between Beeckman and Mersenne. When he conjectured that Beeckman was claiming for himself the honour of having introduced to him an idea on the nature of sound, Descartes seems unilaterally to have made an end to their friendship, only to insult and belittle his old friend in an abusive letter again a year later (Descartes to Beeckman, 17 October 1630, AT I.156–170/ CSMK 26–8).[19] Miraculously, the two men would resume their contact, but it is presumably because of what happened in 1629 and 1630 that Beeckman's biographer would portray René Descartes in 1996 as a "bragging, suspicious, quick-tempered, unreasonable, insincere, self-centered" and "lying" paranoid (Van Berkel 1996: 1). It is, moreover, quite

possible that Descartes borrowed even some of the most general principles of his physics from his Dutch friend.[20] In the autumn of 1630, Descartes may have been provoked by a (p. 13) resentful letter from Beeckman himself that has since been lost, but even if this was the case, his obsession with questions of intellectual priority vis-à-vis his one-time tutor amounts to a painful and embarrassing example of psychological self-deception in Descartes.

Nor was there any reason for seeing Beeckman as his rival. Constantly keeping in touch with Parisian as well as international philosophical circles through his exchange of letters with Mersenne, Descartes, on the whole, seems to have relished playing the role of a solitary oracle to be consulted on any subject in his faraway outskirts. Yet the philosophical perspective on things he had been in the process of developing ever since his first initiation with Beeckman went far beyond any of the piecemeal problem-solving he was in the habit of discussing with others.

5. Another Country

Descartes may have returned to the Netherlands in 1628 first and foremost to meet Adriaan Metius (1571–1635), the Franeker professor of mathematics and brother of Jacob Metius (1571–1628), whom Descartes believed to have invented the telescope (*Diotprics*, AT VI.82). He may likewise have wished to meet Golius or other academics when he enrolled at Leiden University in 1630, or simply have been curious to gauge what reception his ideas could be expected to encounter in these new university surroundings. Except for the countryside at Santpoort and Egmond, Descartes only resided in Dutch cities where new universities or "Illustrious Schools" aspiring to university status had recently been founded, or were in the process of opening their doors: Franeker (University in 1585); Amsterdam (Atheneaum Illustre in 1632); Deventer (Atheneaum Illustre in 1630); Utrecht (Illustrous School in 1634; University in 1636); Leiden (University in 1575). Thriving Amsterdam may also have served as a metropolitan environment in which he might silently retreat, and Leiden certainly served as a place for preparing the publication of his books, but in these and the other cities, personal contacts with academics prone to new ways of thinking seem initially to have attracted Descartes.

His frustration must have been all the greater when he was ultimately drawn into academic controversy in his new homeland. Descartes would advise Regius in 1642 to keep clear from thorny theological issues, but nevertheless urged him to reply to Voetius's arguments in an openly mechanicist way, which Regius did. He chose to launch a personal attack against Voetius himself, first in his 1642 *Letter to Dinet* (AT VII.563–603) and then, after he had read parts of a Utrecht counterattack that was currently in press, in his *Letter to the Very Renowned Gentleman Gisbertus Voetius* (AT VIIIB.1–198). This extensive pamphlet, which appeared with Elsevier in Amsterdam in the spring of 1643, and would soon be translated and widely read in Dutch, portrayed his opponent as a pseudo-scientist, whose childish manner of dialectical reasoning was essentially an anthology of mistaken quotations and inaccurate accusations, driven by the malicious (p. 14) intention to

set up his academic and ecclesiastical audiences against their fellow Christians—and against secular authorities in particular.[21]

Secular authorities within the City of Utrecht had not always been too pleased with Gijsbert Voet, but neither were they necessarily pleased with the public defamation of the star professor of their young university, who was also the main preacher in the local Reformed Church. There were factional differences within the Utrecht magistracy, and when the balance ultimately swung to Voetius's advantage, Descartes, much to his own surprise, was accused of libel on 13 September 1643.[22] Official procedures were announced, and for fear of being arrested, Descartes immediately turned to the French ambassador, who successfully pleaded with Frederick Henry to intervene (Brasset to Descartes, 10 November 1643, AT IV.652–4). Utrecht then decided to let it be, but Descartes now shifted his attention to Groningen, initiating a lawsuit against Voetius's junior accomplice Martin Schoock (1614–69) in return. After this case had been passed on to the Voetius-unfriendly University of Groningen Senate, Descartes would eventually win this case in April 1645, but pamphlet wars meanwhile continued for years, with Descartes re-entering the Utrecht stage as late as 1648 with a last, unfruitful, attempt to obtain an official rehabilitation from the Utrecht government.[23]

The country that had promised him peace, thus brought him disappointment. Not only were there fights and trials in Utrecht and Groningen; from 1646 onwards, there would also be a Leiden Crisis on Cartesianism, which would leave Descartes similarly disappointed with Dutch city and university governors he had thought to win over in the name of truth.[24] Even before considering his eventual move to Sweden, Descartes at times doubted whether he should stay in Holland at all. Informing Huygens on 8 December 1647 of the possibility he might obtain an allowance of £3,000 from the King of France, he pondered:

> it would be unreasonable of me if I would not rather be in a country where I was born and where people bear witness to the fact that they have a certain respect for me, than to stay in another, where for 19 years I have not been able to obtain any kind of citizenship, and where, to escape oppression, I am every time forced to resort to Our Ambassador. (Descartes to Huygens, AT V.654)

Descartes, in the end, never returned to Paris, nor to the Touraine and Poitou countryside of his youth and family background. He did, moreover, experience good times in Holland as well, especially in the Kennemerland countryside, where he enjoyed something of a family life of his own during his first period (1637–9) in Santpoort and surroundings, and would run his dog Scratchy (*M. Grat*) (AT V.133) in the Egmond dunes during the next (1643–9).[25] In between, he published his *Meditations* and prepared for (p. 15) the publication of his *Principles of Philosophy* in and around Leiden, an interval that had brought utter dismay for a different reason, when, on 7 September 1640, his only daughter Fransientje died at the age of 5. Six years earlier, Descartes had developed a passion for Heleen Jans, his landlord's housemaid at Amsterdam's Westermarkt, where Fransientje was conceived on Sunday, 15 October 1634, just before the cold winter of 1635.[26] Half a

decade later, Descartes is thought to have left Leiden in the middle of August 1640 in a hurry, in order to join his ailing little daughter in Amersfoort, but she was not to be saved. He was still mourning her death when, in January 1641, he wrote to his friend Alphonse Pollot (or Alfonso Pollotti, *c*.1602–68) that he had recently suffered the loss of two very dear ones (Descartes to Pollot, mid-January 1641, AT III.278/CSMK 167).[27]

Fransientje had been baptized a member of the Dutch Reformed Church, but her father always kept to his Catholic faith, making Catholic friends even in Holland. In Leiden, he counted on Cornelis van Hogelande (1590–1662), a Catholic pharmacist who would take care of a trunk full of Descartes's papers when the latter set out for Sweden in 1649.[28] In the countryside north of Haarlem, Descartes kept in close contact with local Catholic priests, while he may at some time have sat before Catholic-born Frans Hals in the city of Haarlem itself.[29] At the same time, Descartes's Catholicism should not be overstated. In the 1640s, he would befriend Princess Elisabeth of the Palatinate (1618–80), whose mother held court at The Hague as heir to a family famous for its role in Europe's Protestant cause—and Descartes had many Protestant friends besides. We owe a lively, first-hand description of the philosopher to the Leiden minister and anti-Voetian theologian Abraham Heidanus (1597–1678), who, towards the end of his life, recalled

> [Descartes's] unfeigned gaiety, his good will to respond directly to everything that was asked of him, [and this] with such a clarity of argument, [that it was] as if Philosophy itself spoke through his mouth, without defaming anyone, but judging honestly about all things.
>
> (Heidanus 1676: 30)

Heidanus read a Protestant way of thinking into Descartes's theory of knowledge, but in point of fact Descartes's philosophy had no particularly Catholic, nor a Protestant side, to it. Indeed, Descartes aligned with Arminians and Jesuits as easily as he did with Oratorians and Gomarists, as long as he could put to use their theological forms of analysis in order to explain his own position in epistemology.[30]

(p. 16) As critics, moreover, Protestants and Catholics might equally irritate Descartes. In the early 1640s, they did so to such an extent that he decided the best way to react would be to present his quasi-evolutionary physics in a treatise on the entire subject of philosophy:

> Perhaps these scholastic wars will result in my *World* being brought into the world. It would be out already, I think, were it not that I want to teach it to speak Latin first. I shall call it *Summa Philosophiae* to make it [enter more easily into the conversation of] scholastics, who are now persecuting it and trying to smother it before its birth. The ministers are as hostile as the Jesuits. (Descartes to Mersenne, January 1642, AT III.523/CSMK 209–10)

With a scholastic title and a scholastic structure, Descartes was out to penetrate scholastic territory. But even if his 1644 *Principles* were a last attempt to lure scholastics, he

made no more effort to address them. Instead, he dedicated his *Summa* to the woman who had recently become his best friend in philosophy and mathematics: Princess Elisabeth of Bohemia. Two years into their friendship, Elisabeth turned sick with signs of depression, and Descartes suggested that the Princess read Seneca's *On the Happy Life* as a means of distracting her thoughts (Descartes to Elisabeth, 21 July 1645, AT IV.252–3/ CSMK 256). Soon, however, he got impatient with the Roman Stoic, and characteristically set himself the task to do better. The end result, as is well known, was Descartes's last publication, *The Passions of the Soul* (1649).

Two of Descartes's three major publications after the *Discourse on Method* thus evolved more or less coincidentally, even if both were monumental works. The *Principles of Philosophy* would offer several generations of readers a first impression of the promising new attitude to knowledge, and a first encounter with what a science book might look like. *The Passions of the Soul*, though naturally lacking in neurophysiological sophistication, introduced such an unprecedented conception of the origin of human emotions and the functioning of the human brain, that it may count not only as an innovative approach to morality and behavioural therapy, but also as the historical archetype of neuroscience.[31]

(p. 17) 6. Epistemological Fitness

The third masterpiece of the 1640s, Descartes's *Meditations on First Philosophy* of 1641, even though it drew heavily on earlier theological and moral philosophical views,[32] addressed a topic that had never before been emphasized in an equally consequential manner: the fact that human consciousness presents itself as an "inner world" of experience wholly different from the "outside world" of natural objects.

Contrary to the *Principles* and *The Passions of the Soul*, the *Meditations* had long been in the making. Telling us in the *Discourse* it had been metaphysical thoughts ("perhaps too metaphysical and uncommon for everyone's taste"; AT VI.31/CSM I.126) that had kept him occupied during the first phase of his extended stay in the Netherlands from 1628 onwards, Descartes testifies he began doing metaphysics at a time when optical interests must have been most prominently on his mind. The coincidence may serve to explain to what extent, at least in Descartes, the study of the human mind was the natural result of an interest in optics, just as Robert Hooke (1635–1703) and later commentators would claim.[33] Yet Descartes assures us that to develop a foundational body of "metaphysics" or "philosophy" had been part of a much earlier plan. He had already been convinced in 1619 that he would at some point have to try "first of all" to "establish some certain principles in philosophy", but had ultimately embarked on "philosophy" only towards the end of the 1620s, because he had felt he should "not try accomplish [this]" until he had "reached a more mature age than twenty-three" (AT VI.21–2/CSM I.122), which he had been in November 1619.

That same month, the night following St Martin's Eve in particular—exactly a year after he had met Isaac Beeckman—marked the occurrence of Descartes's famous dreams.[34] Documenting a supposedly single most important turning point in his life, the dreams oc-

curred to Descartes himself as visionary signs succeeding a day of unusual *enthousiasme* on which he had made great philosophical progress (AT X.181), and which is usually thought to have taken place during the period he spent in a stove-heated room in wintry Germany (*Discourse*, AT VI.11/CSM I.116). Though not explaining his discoveries, the dreams certainly mark Descartes's resolution to act on them, and to dedicate his life to the downfall of existing sciences and the construction of new ones.

He must primarily have been working on mathematics at the time, the science in which he would eventually point the way towards the future. In 1619, he was, as yet, nowhere near the level of competence in mathematics he would attain in the course of (p. 18) the 1630s.[35] Still, even what he had found in 1619 had been remarkable enough, as there is every reason to believe Descartes's first steps in mathematics instantly made clear to him that geometry might gain from a novel application of algebraic techniques. What had struck him was that proportional relations might both be numerically expressed in terms of algebraic equations, and be used as a descriptive basis for geometrical construction, thus providing a common ground for the exact constructions of geometry as well as the exact operations in arithmetic, even if there was no direct relation between the continuous type of quantity represented by lines and curves and the discrete type of quantity represented by numbers.

How, exactly, Descartes initially envisaged his mathematical findings to be of relevance to all other fields of human knowledge will perhaps forever remain unresolved, since the impenetrable text we now know as the *Regulae*, or *Rules for the Direction of the Mind*, on which Descartes is thought to have worked during most of the 1620s, was ultimately left unfinished.[36] It announced, as has been well said, so many different ideas "competing for attention in Descartes's still inchoate plans for a renewal of knowledge", that it amounted to an "ambitious project […] impossible to realize" from the start (Clarke 2006: 86).[37]

Despite this, Descartes's own autobiographical reconstruction of 1637 mentions no breaks in his intellectual development other than his decision not to publish *Le monde*, and leaves the impression that there was some basic insight he had first had in 1619 or 1620 and still considered to be relevant to the way in which he had subsequently developed his new methodological outlook on "the sciences". The obvious candidate for an elementary insight that would remain with Descartes throughout the 1630s and the 1640s is the idea that his rejection of Aristotelian ontological categories came along with the view that there are inborn sets of intuitively clear notions serving the intellect as (p. 19) clues for the solution of problems. The sixth of his *Rules*, likewise, tells us the main "secret" of his method is that

> [it] instructs us that all things can be arranged serially in various groups, not in so far as they can be referred to some ontological genus (such as the categories into which philosophers divide things), but in so far as some things can be known on the basis of others. (*Rules*, AT X.381/CSM I.21)

Philosophers had always been looking for the wrong things on which to build their explanations. They had ineptly taken account only of observable things, their properties and classifications, and had provided these with a metaphysical status. Descartes now proposes to replace this attention to the categorization of things with a new philosophical concern: to search for the intuitively clear aspects on the basis of which dissimilar things may be linked and understood, just as the notion of proportionality had provided a common ground for linking dissimilar things in mathematics.[38]

Le monde would immediately resume the *Regulae*'s attack on the use of Aristotelian categories, not only by focusing on the "difference between our sensations and the things that produce them" (AT XI.3/CSM I.81), but also by recommending that all references to things and properties be exchanged for imaginative models based on the "motion" of "parts". Aristotelian ontological conceptions might well apply to common sense, but Descartes's advice was no longer to concentrate on forms and qualities in science. Rather, to understand a phenomenon such as combustion, one should "take away the 'fire', take away the 'heat', and keep the wood from 'burning' " (AT XI.7/CSM I.83).

A now forgotten work that has only recently been dated more or less conclusively as having been written during the period 1633–5,[39] the unfinished "Galilean" dialogue, *Search after Truth* (*La recherche de la vérité par la lumière naturelle*), argues there are things "one learns only by experiencing them" (AT X.525). Significantly, it is not sense experience Descartes is considering here. Rather, it is the mental experience of *certainty*, elucidated by the fact that whereas one may doubt anything about the outside world, one knows very well what it is to *doubt*, or to *think*, as well as what it is to *be*, without there being any need to find out what "doubting", "thinking" or "being" might mean. Apparently, our minds are naturally adapted, or so Descartes argues, to receiving exactly the right kind of information necessary for being convinced by these experiences themselves.

(p. 20) The topic is suggestive of the subject matter of the *Meditations*, as well as of the general theme of epistemological fitness that Descartes had first set out to elaborate in his *Rules*, and would continue to develop in all of his later works. Prefiguring present-day findings in child psychology,[40] he would maintain, in *The Passions of the Soul*, that one of the most significant aspects with respect to the wonder we experience about external objects is whether or not we attribute to them a free will (AT XI.374/CSM I.350). This is a psychological view neatly mirroring Descartes's general conception of science, which consistently linked human knowledge to the innate capacity to understand both ourselves and physical nature, as well as the effects of the interaction occurring between the realms of the mental and the physical. Science, for Descartes, though it contravened sense experience, nevertheless confirmed man's conceptual fitness to understand reality, even if only within the boundaries of the instinctive ideas we are mentally equipped with.

Extrapolating our intuitive construction kit-model of matter in such a way as to regard it as paradigmatic for the explanation of all physical phenomena, Descartes's system of the world would prove to be only an intermediate phase in the history of physics. Even in his groundbreaking explanation of the rainbow, Descartes would highlight his own mistaken

interpretation of the origin of colours as the very part of his theory in which "reasoning and experience" were so seamlessly combined that no other explanation could be possible (*Meteors*, AT VI.334). The fact that reason and experience are not perfectly aligned in this way would make Descartes a misguided physicist, but an all the more interesting philosopher, whose questions with regard to the reliability of our species-bound impressions of reality will continue to inspire any future attempt to establish our epistemological situation as conscious beings.

7. Stockholm

Tired of fighting the philosophers, Descartes would end his life in Sweden, lured to the court of another female royal intellectual, Queen Christina, by Pierre Chanut (1601–62), another French ambassador, with whom Descartes shared an interest in barometrical experiments.[41] He may have regretted ever having left his beloved Egmond for a "land of bears, rocks and ice" (Descartes to Brasset, 23 April 1649, AT V.349/CSMK 375), a land where "during the winter men's thoughts are frozen […] like the water", as he put it in the last known letter he sent on 15 January 1650, the letter in which he also disclosed not to be "in his element" at the Swedish court (Descartes to Brégy, AT V.467/CSMK 383–4). A fit of pneumonia in early February 1650 would prove that he was out of place, but also prevent him from ever returning.

(p. 21) In a curious account of the post-mortem dealings with his body, Russell Shorto has recently turned Descartes's corpse into a metaphor for several centuries of subsequent scientific development in cosmology, geology, and biology, as well as for present-day cultural and political dilemma's related to the historical emergence of the Cartesian mind.[42] Shorto's outsider image is rather more sympathetic to Descartes than the picture one habitually finds of the philosopher and his afterlife in philosophical circles. Indeed, even beyond the days of scholasticism, relations between Descartes and those who go by the name of *philosophes* have continued to be cumbersome. Charging him with somehow having been responsible for our belief in a "transparent soul" or "human subject", philosophical history has prototypically offered a picture of Descartes's life and works that is hugely dissimilar to what our protagonist himself would have accepted as his legacy.

Happily, there are small tokens honouring Descartes's personal motivations as well. Long before Shorto took his body on its metaphorical journey through European intellectual history, it found a physical burial place just outside Stockholm's *Adolf Fredriks kyrka*. It is in the interior of this church that, since 1781, one may find a momument suitably saluting what Descartes himself would no doubt have considered the foremost fruit of his findings. It figures an angel, the ultimate symbol of a separate mind, unveiling to us the world in the form of a globe, which it does by lifting the heavy curtain that had formerly kept it hidden from view.

References

Åkerman, Susanna (1991), *Queen Christina of Sweden and her Circle: The Transformation of a Seventeenth-Century Philosophical Libertine*. Leiden: Brill.

Antoine-Mahut, Delphine, and Stephen Gaukroger, eds. (2016), *Descartes' "Treatise on Man" and its Reception*. Dordrecht: Springer.

Arthur, Richard (2007), "Beeckman, Descartes and the Force of Motion", *Journal of the History of Philosophy* 45: 1–28.

Baillet, Adrien (1691), *La Vie de M. Descartes*, 2 vols. Paris: D. Horthemels.

Beeckman, Isaac (1939), *Journal tenu par Isaac Beeckman de 1604 à 1634. Tome 1: 1604–1619*, ed. C. de Waard. The Hague: Martinus Nijhoff.

Ben-Yami, Hanoch (2015), *Descartes' Philosophical Revolution: A Reassessment*. Basingstoke and New York: Palgrave Macmillan.

Bloom, Paul (2004), *Descartes' Baby: How the Science of Child Development Explains What Makes us Human*. New York: Basic Books.

Bos, Erik-Jan (1996), "Inleiding", in René Descartes, *Verantwoordingh van Renatus Descartes aen d'achtbare overigheit van Uitrecht; Een onbekende Descartes-tekst*. Amsterdam: Amsterdam University Press, 1–72.

Bos, Erik-Jan (2018), "Deux signatures de Descartes dans des registres de baptêmes; et la date de la mort de sa sœur Jeanne", *Bulletin cartésien* XLIV, *Archives de Philosophie* 81: 171–223.

Bos, Henk J. M. (2001), *Redefining Geometrical Exactness: Descartes' Transformation of the Early Modern Concept of Construction*. New York: Springer.

(p. 22) Bos, Henk J. M. (2009), "Descartes' Attempt, in the *Regulae*, to Base the Certainty of Algebra on Mental Vision—A Conjectural Reconstruction", in Clark Glymour, Wei Wang, and Dag Westerstahl (eds.), *Logic, Methodology and Philosophy of Science: Proceedings of the Thirteenth International Congress*. London: College Publications, 354–73.

Boyer, Carl B. (1959), *The Rainbow from Myth to Mathematics*. New York and London: Thomas Yoseloff.

Buning, Robin (2013), *Henricus Reneri (1593–1639): Descartes' kwartiermaker in aristotelisch territorium*. Utrecht: Utrecht University.

Clarke, Desmond M. (2006), *Descartes: A Biography*. Cambridge: Cambridge University Press.

Cohen, Gustave (1921), *Écrivains français en Hollande dans la première moitié du **XVII**^{e} siècle*. The Hague: Martinus Nijhoff and Paris: Édouard Champion.

Cohen, H. F. (1984), *Quantifying Music: The Science of Music at the First Stage of the Scientific Revolution, 1580–1650*. Dordrecht: D. Reidel.

Cole, John R. (1992), *The Olympian Dreams and Youthful Rebellion of René Descartes*. Urbana and Chicago: University of Illinois Press.

Cottingham, John (1986), *Descartes*. Oxford: Basil Blackwell.

Damasio, Antonio (1994), *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: Grosset-Putnam.

Descartes, René (2007), *Specimina Philosophiae: Introduction and Critical Edition*, ed. Corinna L. Vermeulen. Utrecht: Zeno.

Descartes, René, and Martin Schoock (1988), *La querelle d'Utrecht*, ed. Theo Verbeek. Paris: Les impressions nouvelles.

Fontenelle, Bernard de (1717), "Éloge du Père Malebranche", in *Histoire du Renouvellement de l'Académie Royale des Sciences en 1699 et les Éloges Historiques de tous les Académiciens mort depuis ce Renouvellement.* Paris: M. Brunet, 337–400.

Garber, Daniel (2001), *Descartes Embodied: Reading Cartesian Philosophy through Cartesian Science*. Cambridge: Cambridge University Press.

Gaukroger, Stephen (1995), *Descartes: An Intellectual Biography*. Oxford: Clarendon Press.

Hatfield, Gary (2007), "The *Passions of the Soul* and Descartes's Machine Psychology", *Studies in History and Philosophy of Science* 38: 1–35.

Hatfield, Gary (2016), "L'Homme in Psychology and Neuroscience", in Delphine Antoine-Mahut and Stephen Gaukroger (eds.), *Descartes' "Treatise on Man" and its Reception*. Dordrecht: Springer, 269–85.

Hattab, Helen (2009), *Descartes on Forms and Mechanisms*. Cambridge: Cambridge University Press.

Heidanus, Abraham (1676), *Consideratien, over Eenige saecken onlanghs voorgevallen in de Universiteyt binnen Leyden*. Amsterdam: J. van Someren.

Hooke, Robert (1705), "A General Scheme, or Idea of the Present State of Natural Philosophy and how its Defects may be Remedied", in *The Posthumous Works of Robert Hooke, Containing his Cutlerian Lectures and Other Discourses, Read at the Meetings of the Illustrious Royal Society*, ed. Richard Waller. London: Smith and Walford, 1–70.

Kaposi, Dorottya (2004), "Indifférence et liberté humaine chez Descartes", *Revue de métaphysique et morale* 41: 73–99.

Lipstrop, Daniel (1653), "Appendix", in *Specimina Philosophiae Cartesianae*. Leiden: J. and D. Elsevier, 69–93.

Lojacono, Ettore (2009), "Hypothèses de datation", in René Descartes, *La recherche de la vérité par la lumière naturelle*. Paris: PUF, 161–201.

(p. 23) Lüthy, Christoph (2012), *David Gorlaeus (1591–1612): An Enigmatic Figure in the History of Philosophy and Science*. Amsterdam: Amsterdam University Press.

McGahagan, Thomas Arthur (1976), *Cartesianism in the Netherlands, 1639–1667: The New Science and the Calvinist Counter-Reformation*. Ann Arbor and London: University Microfilms International.

Marion, Jean-Luc (1981), *Sur l'ontologie grise de Descartes*. Paris: Vrin.

Mercer, Christia (2001), *Leibniz's Metaphysics: Its Origins and Development*. Cambridge: Cambridge University Press.

Nadler, Steven (2013), *The Philosopher, the Priest, and the Painter: A Portrait of Descartes*. Princeton and Oxford: Princeton University Press.

Rozemond, Marleen (1998), *Descartes's Dualism*. Cambridge, MA and London: Harvard University Press.

Sasaki, Chikara (2003), *Descartes's Mathematical Thought*. Dordrecht, Boston, and London: Kluwer.

Schmaltz, Tad (2016), "The Early Dutch Reception of *L'Homme*", in Delphine Antoine-Mahut and Stephen Gaukroger (eds.), *Descartes' "Treatise on Man" and its Reception*. Dordrecht: Springer, 71–90.

Schuster, John A. (1980), "Descartes; Mathesis Universalis: 1619–28", in Stephen Gaukroger (ed.), *Descartes: Philosophy, Mathematics and Physics*. Brighton: The Harvester Press, 41–96.

Schuyl, Florentius (1662), "Ad Lectorem", in René Descartes, *De Homine: Figuris et Latinitate donatus a Florentio Schuyl*. Leiden: P. Leffen and F. Moyaerd, a2–e2.

Sepper, Dennis L. (1996), *Descartes's Imagination: Proportion, Images, and the Activity of Thinking*. Berkeley, Los Angeles, and London: University of California Press.

Sepper, Dennis L. (2000), "Figuring Things Out: Figurate Problem-Solving in the Early Descartes", in Stephen Gaukroger, John Schuster, and John Sutton (eds.), *Descartes' Natural Philosophy*. London and New York: Routledge, 228–48.

Shea, William R. (1993), *The Magic of Numbers and Motion: The Scientific Career of René Descartes*. New York: Science History Publications.

Shorto, Russell (2008), *Descartes' Bones: A Skeletal History of the Conflict between Faith and Reason*. New York: Doubleday.

Suarez, Franciscus (1994), *On Efficient Causality: Metaphysical Disputations 17, 18, and 19*, ed. Alfred J. Freddoso. New Haven and London: Yale University Press.

Van Berkel, Klaas (1996), "De schijnbewegingen van een melancholicus", *NRC Handelsblad*, 9 May 1996, Bijlage Wetenschap en Onderwijs, 1.

Van Berkel, Klaas (2003), "Beeckman, Isaac (1588–1637)", in Wiep Van Bunge, Henri Krop, Bart Leeuwenburgh, Han van Ruler, Paul Schuurman, and Michiel Wielema (eds.), *The Dictionary of Seventeenth and Eighteenth-Century Dutch Philosophers*. Bristol: Thoemmes Press, 68–74.

Van Berkel, Klaas (2013), *Isaac Beeckman on Matter and Motion: Mechanical Philosophy in the Making*. Baltimore: Johns Hopkins University Press.

Van Otegem, Matthijs (2002), *A Bibliography of the Works of Descartes (1637–1704)*, 2 vols. Utrecht: Zeno.

Van Ruler, Han (1995), *The Crisis of Causality: Voetius and Descartes on God, Nature and Change*. Leiden: E. J. Brill.

Van Ruler, H. (1999), "Waren er muilezels op de zesde dag? Descartes, Voetius en de zeventiende-eeuwse methodenstrijd", in Florike Egmond, Eric Jorink en Rienk Vermij (eds.), *Kometen, monsters en muilezels: Het veranderende natuurbeeld en de natuurwetenschap in de zeventiende eeuw*. Haarlem: Arcadia, 120–32.

(p. 24) Van Ruler, H. (2003), "Hogelande, Cornelis van (1590–1662)", in W. Van Bunge, H. Krop, B. Leeuwenburgh, H. van Ruler, P. Schuurman, and M. Wielema (eds.), *The Dictionary of Seventeenth and Eighteenth-Century Dutch Philosophers*. Bristol: Thoemmes Press, 435–8.

Van Ruler, H. (2011), *Mensen, dingen, moderniteit: Over metafysische projecties en het antwoord op de vraag "Waarom toch altijd die Descartes?"* Rotterdam: Erasmus Universiteit.

Van Ruler, H. (2014a), "The Internal Force of Proper Causes: Some Thoughts on the Logic of Forms and Substances in Suarez and Spinoza", in Stefano Caroti and Mariafranca Spallanzani (eds.), *Individuazione, individualità, identità personale: Le ragioni del singolo*. Firenze: Le Lettere, 23–45.

Van Ruler, H. (2014b), "Substantiële entiteiten zonder vorm: Gorlaeus' worsteling met Aristoteles", *It Beaken: Tydskrift fan de Fryske Akademy* 76: 197–228.

Van Ruler, H. (2016), "La découverte du domain mental: Descartes et la naturalisation de la conscience", *Noctua—la tradizione filosofica dall'antico al moderno*, 3: 239–94. Retrieved from **http://hdl.handle.net/1765/101676** [accessed September 2018].

Verbeek, T. (1992), *Descartes and the Dutch: Early Reactions to Cartesian Philosophy (1637–1650)*. Carbondale and Edwardsville: Southern Illinois University Press.

Verbeek, T. (1996), *De Wereld van Descartes: Essays over Descartes en zijn tijdgenoten*. Amsterdam: Amsterdam University Press.

Verbeek, T. (2003), "Reneri, Henricus", in W. van Bunge, H. Krop, B. Leeuwenburgh, H. van Ruler, P. Schuurman, and M. Wielema (eds.), *The Dictionary of Seventeenth and Eighteenth-Century Dutch Philosophers*. Bristol: Thoemmes Press, 824–6.

Verbeek, T. (2012), "Generosity", in Sabrina Ebbersmeyer (ed.), *Emotional Minds*. Berlin and Boston: Gruyter, 19–30.

Weber, J.-P. (1964), *La constitution du texte des Regulae*. Paris: Sedes.

Notes:

(*) I should like to thank Theo Verbeek and Erik-Jan Bos for their comments on an earlier draft of this chapter.

([1]) Boyer 1959: 212.

([2]) The *Specimina philosophiae* were first published with L. Elsevier in Amsterdam in 1644, though without the *Geometry*. See Descartes (2007) for a critical edition. The *Proeven der Wijsbegeerte* also appeared in Amsterdam, but with J. Rieuwertsz, in 1659. See Van Otegem 2002 for all bibliographical details on Descartes's works.

([3]) For a detailed analysis of how Leibniz "emerged from the Rosental grove", pondering the notion of "substantial forms" (as well as that of "natures"), see Mercer 2001: 23–59 (quotation from 26–7).

([4]) The *ens per accidens*-thesis has been associated with the threat of Averroism, but may also have been considered a "Platonic" form of metaphysical analysis scholastic authors deemed themselves far beyond. See Van Ruler 1995: 187–92 for a discussion.

([5]) On the 1641 conflict at Utrecht University, see McGahagan 1976, Descartes and Schoock 1988 and Verbeek 1992.

([6]) Verbeek 1992: 18. Bibliographical details with regard to Voetius's essay 'On the Natures and Substantial Forms of Things' may be found in Van Ruler 1995: 9.

([7]) Cf. Van Ruler 1995 and 2014a.

([8]) Likewise, Franciscus Suarez (1548–1617) argued substantial forms require "the cooperation of an accidental instrument" since they require "accidental dispositions on the part of the matter" (Suarez 1994: 74). See also Van Ruler 2014a.

([9]) See Van Ruler 2011, as well as *De Anima* II 8 for Aristotle's analysis of the nature of sound.

([10]) Verbeek 2003 and Buning 2013: 131–5.

([11]) Information obtained from Vopiscus Fortunatus Plempius (1601–71) by Cohen (1921: 467–8).

([12]) Fontenelle (1717: 340–1). On the subsequent reception of the *Treatise on Man*, see Antoine-Mahut and Gaukroger 2016. On the book's reception in the Netherlands, see Schmaltz 2016.

([13]) Schuyl 1662: d4v.

([14]) For a balanced view on the relevance of Descartes's work for the development of the notion of biological reflexes, see Hatfield 2016. Hatfield (2007: 29) himself previously raised the possibility of a historical line of influence from René Descartes down to nineteenth-century mechanistic psychological thought and Ivan Pavlov. The possibility of such long-term historical impact aside, Descartes's elimination of the notion of the soul from an explanation of the workings of the body is a fine example of how, as Rozemond (1998: xiv) has argued, "Descartes […] had far more to say about the physical world than about the mind."

([15]) Even an acclaimed substance-mode ontologist (Hattab 2009) such as David Gorlaeus (1591–1612), on whom see Lüthy 2012, found it impossible to appreciate the idea that natural philosophy might cease to preoccupy itself with uncovering "substantial", and thus causally responsible, "actors" of change (Van Ruler 2014b).

([16]) Lipstorp 1653: 76–7. The story may well be fictitious, but Descartes and Beeckman did in fact meet that same day. Cf. Beeckman 1939: 237.

([17]) On Beeckman, see Van Berkel 2003 and 2013.

([18]) Beeckman 1939: 269, Cohen 1984: 166, Shea 1993: 81–3.

([19]) For a fierce accusation of disingenuousness on the part of Descartes, see Shea 1993: 83–6. Note, however, that although Beeckman had originally spurred Descartes to offer a physical interpretation of sound (see note 18), the latter would uphold a wave theory of the propagation of sound contradicting Beeckman's conception of a displacement of air (Cohen 1984: 200–1; Shea 1993: 82–3).

([20]) Summing up the details, Arthur (2007: 27) concluded that "a significant part of what subsequently became known as Cartesian natural philosophy was plagiarized from Beeckman".

([21]) Verbeek 1992: 23–9; Van Ruler 1999.

([22]) E.-J. Bos 1996: 14–21.

([23]) Verbeek (1992: 29–33), E.J. Bos (1996: 21–35).

([24]) Verbeek 1992: 34–51.

([25]) Gaukroger (1995: 332) even spoke of an "Indian summer" in relation to the 1637–9 period. See also note 29. Biographical details on Descartes may be found in Gaukroger 1995 and Clarke 2006. For an elegant fusion of Descartes's life and philosophical views, see also Verbeek 1996.

([26]) At least according to Adrien Baillet (1649–1706), whose biographical account of Descartes in two volumes of 1691, though laden with moral opinion, was based on lots of first-hand information no longer available (Baillet 1691: II.89–90).

([27]) On the interpretation of this letter, see E.-J. Bos (2018).

([28]) Van Hogelande often also acted as Descartes's Leiden Mersenne. See Van Ruler 2003.

([29]) A charming portrait of Descartes, with a special focus on the Kennemerland, may be found in Nadler 2013.

([30]) Kaposi 2004, Van Ruler 2016: 256–64.

([31]) A notable illustration of this is given by the many similarities that may be drawn between Descartes's *Meditations* and *Passions* and the book the Portuguese-American neuroscientist Antonio Damasio would publish in 1994 under the unfortunate title *Descartes's Error*. One of the main motives in Damasio's work is the view that feelings are images of a physical state of affairs. This emphasis on the physiological basis for the association of ideas and on the absence of the will in the description of mental events, as well as the idea of the animal organism's ability to respond to environmental factors and social and ethical conventions by an internal system of dislikes and preferences, are in fact repetitions of what Descartes had already argued in 1649—except that, in the context of innate reaction patterns, Damasio (1994: 131–2) refers to the example of the eagle that frightens the baby chick, whereas Descartes borrowed from Antoine Arnauld (1612–92) the example of the wolf in the eyes of the sheep (AT VII.230/CSM II.161). For a fine assessment of Descartes's theory of morality, see Verbeek 2012.

([32]) See Van Ruler 2016: 256–70.

([33]) Even only a generation or so after Descartes, Robert Hooke was to conclude that "Des [Cartes's] philosophy favours [i.e. gains] much of his opticks" (Hooke 1705: 9). (I thank Lukas Wolf for the reference.) A recent argument for the relevance of optics to Descartes's mature philosophy may be found in Ben-Yami 2015.

([34]) As dreams will be, these have been variously interpreted; Descartes himself read them in terms of conscious motivations, whereas a recent analysis by J. R. Cole, for instance, has suggested the combined hypotheses of a mental struggle with his father's expectations, and an early outburst of suppressed anger against Beeckman for not taking him entirely seriously in his philosophical ambitions (Cole 1992).

([35]) Shea 1993, H. J. M. Bos 2001, Sasaki 2003. His primary interest being in geometrical construction (for which he used algebra as a form of "analysis"—i.e. as an aid for finding

solutions to geometrical problems), Descartes never fully developed the science of analytic geometry himself. He has accordingly been portrayed as someone who stayed "closer to the older way of thinking" as a mathematician (Sepper 2000: 246).

([36]) Reconstructions of the genesis of the *Rules* may be found in Weber 1964 and Schuster 1980. Descartes quitted working on the *Regulae*, probably because he had come to realise his own apparent blindness to the fact that algebraic expressions of proportional relations were not, as he had expected, easily reducible to a basic set of intuitively clear geometrical imaginations (Schuster: 1980: 77–9; Gaukroger 1995: 172–81; Shea 1993: 139–43). Henk Bos has suggested Descartes may have been thinking of illustrating a clear and distinct figurative representation of division by the use of a gnomon figure, which, however, is inconclusive when it comes to root extraction (H. J. M. Bos 2009).

([37]) The standard assumption, accordingly, is that Descartes gave up all he had been trying out during his early years, and moved to Holland a second time in 1628 to start all over again. John Schuster, for instance, argues that the failure to incorporate his corpuscular-mechanical model of physics in a universal mathematics, besides "latent epistemological problems", made Descartes shift his attention, as of 1628, to "corpuscular-mechanism" and "constructive metaphysics" instead (Schuster 1980: 73–80; quotations from 76 and 80). Daniel Garber, on the other hand, argues the idea of a "method" in Descartes is itself only a fossil of the 1620s, retrospectively explaining the solution of specific problems such as finding the anaclastic and explaining the rainbow, but quite irrelevant to the projects Descartes would later undertake as a philosophical "system builder" (Garber 2001: 47–51; quotation from 49).

([38]) With good reason, Jean-Luc Marion accordingly identified Aristotle (or at least, as the book's blurb presents it: "the Aristotelian *corpus*") as the hidden interlocutor in Descartes' *Rules*. For Marion, however, this in itself was a reason for disparagement, as he deemed Descartes's alternative philosophy to offer a colourless ontology for not pronouncing itself in metaphysical terms (Marion 1981: 186). Dennis L. Sepper, by contrast, offers a more constructive analysis of what is at stake in Rule 6: "rather than seek the essence and the attributes of a thing, [Descartes's art or method] fosters noting what is given […] and identifying axes or aspects under which the given can be viewed" (Sepper 1996: 174).

([39]) Lojacono 2009.

([40]) Bloom 2004.

([41]) See Åkerman 1991: 46–7 for an assessment of Descartes's ulterior reasons for accompanying Chanut.

([42]) Shorto 2008.

Han van Ruler

Erasmus School of Philosophy, Erasmus University Rotterdam

What Descartes Read: His Intellectual Background

Roger Ariew

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Abstract and Keywords

A collection of fifty essays on Descartes and his influence in the seventeenth century. The first section is devoted to various aspects of Descartes's philosophy (biography, epistemology, metaphysics, natural philosophy (science), mathematics, philosophical theology, etc.). The second section is devoted to Descartes's influence, especially Cartesians and the Cartesian movement, in France, the Netherlands, Italy, England and elsewhere. The third section is devoted to the critics and opponents of Descartes and Cartesianism.

Keywords: the cogito, meditation, Scholasticism, skepticism, Stoic ethics

(p. 25) 1. Descartes and Books

ON Christmas day in 1639, in a long letter responding to three letters from Marin Mersenne, Descartes answers criticisms in Mersenne's third letter as follows: he thanks Mersenne for his advice regarding his essay on metaphysics, meaning, regarding a draft of the *Meditations*; he rejects some arguments of Ramon Lull, to which Mersenne must have referred, as "only sophisms of which I take no account"; and he sketches a tactic for responding to some mathematical objections relayed by Mersenne, saying "I will try to resolve them without setting them out, that is, I will lay the foundations, from which those who will know them will be able to derive their solution, without teaching them to those who do not know them." He then states, in a seemingly disconnected manner: "Moreover, I am not as deprived of books as you think I am, and I still have here a *Summa* of St. Thomas and a Bible I brought from France" (AT II.629–30). These responses satisfy our image of Descartes, the haughty, dismissive, and defensive loner, the "avid traveller"[1] who exiled himself to the Netherlands, who never resided anywhere very long, and who saw travel itself as a replacement for study in schools and through books—of which he read few and owned even fewer. How accurate is this image of Descartes, at least as it concerns books and his intellectual background?

Now, there are numerous occasions in which Descartes is discussing a topic, but claims he cannot delve deeper into it, lacking the resources to do so. For example, in an early letter to Beeckman, he relates an encounter with a "learned man" with whom he talked about Lull's *Ars parva*. He adds: "I would gladly examine the issue if I had the book; but since you have it, please examine it yourself at your leisure, and write to me about whether you find this art so ingenious" (AT X.165). On another occasion, Descartes, (p. 26) writing to the mathematician Jan Stampioen, refers to Pappus's problem, which he "was specifically made aware of about two months ago by Mr. Golius, professor at Leyden". He indicates he will phrase the problem in the same terms he devised for Golius, because it seems to him the terms Pappus used "are more obscure, and I do not have the book" (AT I.278). Descartes also tells another mathematician: "I even had to borrow a book of Euclid to learn something with respect to an issue proposed to me" (AT I.472). It is not just that Descartes does not seem to have many books at his disposal; he also claims, as a rule, that he does not wish to read books. In a letter to Mersenne discussing a manuscript detailing a plan for a universal book catalogue, he says he imagines "that it will not just serve those who want to read many books", but adds: "and you know I do not number myself among them" (AT I.221). On another occasion, he similarly tells Mersenne: "As you know, I do not have books, and if I did have any, I would complain about the time it would take me to read them" (AT I.251). Descartes once told Mersenne that he learns without books: "I will then also look at *Philolaus*, but for now I am studying without a book" (AT II.571).

Still, it does look as if Descartes has much more than a Bible and a *Summa* of St. Thomas on hand.[2] A year earlier he related to Huygens: "I visit my books so rarely that, although I only have a half dozen, nevertheless one of your books hid among the others for more than six months without being seen by me" (AT II.456). So this time the count was at least half a dozen books; in fact, throughout the period, one can see various correspondents sending books to Descartes.[3] Moreover, he frequently gives his opinions of the books he receives, and sometimes composes and forwards lengthy reading notes about them: Jan Comenius's *Pansophiae Prodromus*, Herbert of Cherbury's *De veritate*, Sebastian Basso's *Philosophiae naturalis adversus Aristotelem*, and François Viète's *De emendatione aequationum*, to name a few (respectively, *To Mersenne*, 1639 *Judicium de Opere Pansophico*, AT II.651–2; *To Mersenne*, 16 October 1639, AT II.596–9 and AT II.658; *To Huygens*, 28 March 1636, AT I.602–3; *To Mersenne*, end of December 1637, AT I.478–81).

One set of Descartes's reading notes is worthy of somewhat more mention. Descartes wrote a long letter containing his "observations of Galileo's book", that is, the *Discorsi … Due Nuove Scienze* of 1638 (see AT II.379–402). He prefaced the letter with a now notorious criticism of Galileo:

> Generally speaking, I find that he philosophizes much more ably than is usual, in that, so far as he can, he abandons the errors of the Schools and tries to use mathematical methods in the investigation of physical questions. On that score, I am completely at one with him, for I hold that there is no other way to discover the truth. But he continually digresses, and does not take time to explain matters fully.

> (p. 27) This, in my view, is a mistake: it shows that he has not investigated matters in an orderly way, and has merely sought explanations of some particular effects, without going into the primary causes in nature; hence his building lacks a foundation. Now the closer his style of philosophizing gets to the truth, the easier it is to recognize his faults, just as it is easier to tell when those who sometimes take the right road go astray than it is to point out aberrations in the case of those who never begin to follow it. (AT II, 380; see also AT II.433, 443)

Descartes is often taken to task for not appreciating Galileo. Such critiques usually miss the large element of contingency and misunderstanding in the relations between the two thinkers. In fact, Descartes had previously said something similar with respect to Galileo's *Dialogo … due massimi sistemi del mondo* of 1632. There on the whole he begrudgingly praised Galileo for following the right path and not accepting received opinions: "I find that he philosophizes well enough on motion, though there is very little he has to say about it I find entirely true. As far as I could see, he goes wrong more often when following received opinion than when going beyond it, with the exception of his discussion of the ebb and flow of the tides, where I find his reasoning rather forced" (AT I. 304). There is a consistency to Descartes's criticism, which he expands to all philosophers, including Galileo, who he says are trying to explain particular phenomena without delving into the primary causes of nature: "I can only say that neither Galileo nor any other can determine anything clear and demonstrative regarding this [a body's motion being slowed by air], without knowing first what weight is and what are the true principles of physics" (AT I.392).

Descartes was in the position to make his initial assessment of Galileo's natural philosophy only because, as he divulged in the same letter, "Beeckman came here on Saturday evening and lent me the book by Galileo. But he took it away with him to Dordrecht this morning; so I have only had it in my hands for thirty hours. I was able to leaf through the whole book" (AT I.304). We assume that Descartes had access to Galileo's works and that he would know about as much concerning Galileo as we do. But Descartes's correspondence imparts a different impression. Before his observations of 11 October 1638, Descartes refused to comment about Galileo's *Discorsi* simply because he had not seen the work: "Your last letter just contains observations on Galileo's book, to which I cannot reply, because I have not yet seen it; but as soon as it is available for sale, I will look at it, if only to be able to send you my copy with my annotations, if that would be worth doing, or at least to send you my observations" (AT II.194). It took a few more months before Descartes was able to read the book (see AT II.336). Later, responding to an accusation that he had borrowed some of Galileo's ideas, Descartes said: "First of all, concerning Galileo, let me say that I have never met him, and have had no communications with him, and consequently I could not have borrowed anything from him. Moreover, I see nothing in his books that gives me cause to be envious, and hardly anything I would wish to acknowledge as my own. The best part is what he has to say on music" (AT II.388–9; see also AT III.87).[4]

(p. 28) So far the episode demonstrates the difficulty in getting hold of books. But we can see yet another element of muddle and miscommunication in Descartes's statement that what is best about Galileo has to do with what he says about music. Either Descartes thinks so poorly of Galileo's works that he can assert the best part about Galileo is the very little he says about music, or Descartes confused Galileo with his father Vincenzo (1520–91), a noted musical theorist. The latter possibility might account for Descartes's puzzlement about Galileo's great longevity; he states in another letter: "You write about Galileo as if he were still alive and I thought that he was long dead" (AT III.74). We clearly should not underestimate the opacity of these intellectual contexts; it may be difficult to find books one wants to read and to understand fully what one is reading, whether or not one wants to read many books.

There is one more important series of letters that demonstrates the difficulty specifying the appropriate intellectual context for Descartes. It concerns his relations with Augustine. As is well known, the *cogito* can be found before Descartes, that is, before his *Discourse* and *Meditations*, notably, in several of Augustine's works—as, for example, in *The City of God, On Free Will*, and *On the Trinity* (*De Civitate Dei* XI, 26; *De Libero Arbitrio* II, 7; *De Trinitate* X, 16 and XV, 12). After he published the *Discourse* in 1637 containing the *cogito*, a number of people informed Descartes of this fact, including his frequent correspondents, Mersenne, Arnauld, and Mesland (see *To Mersenne*, 25 May 1637, AT I.376; 15 November 1638, II.435; and December 1640, III.261. For Arnauld, see *Objections IV*, AT VII.197–8, and 3 June 1648, AT V.186. See also *To Mesland*, 2 May 1644, AT IV.113); Descartes responded to another of his correspondents, the Dutch protestant minister Andreas Colvius, as follows:

> You have obliged me by bringing to my attention the passage of St. Augustine which bears some relation to my "I think, therefore I am." I went to read it today at the library of this city, and I find that he makes use of it to prove the certainty of our being, and then to show that there is in us a some image of the Trinity, in that we exist, we know that we exist, and we love this being and this knowledge in us. Instead, I use it to make it known that this *I* who is thinking is *an immaterial substance*, and has nothing corporeal in it. These are two very different things. It is something so simple and natural in itself to infer that one exists from the fact that one is doubting that it might have come from anybody's pen. But I am still glad to have come together with St. Augustine, if only to shut the mouths of the little minds who have tried to quibble with that principle. (14 November 1640, AT III.247–8)

So, the question arises: how to make sense of what Descartes says to Colvius? Is Descartes really to be understood as not knowing that Augustine made use of a *cogito* until Colvius pointed it out to him?

The exchanges between Mersenne and Descartes about the *cogito* can provide some clues. As usual, we do not have Mersenne's side of the letters, but must reconstruct what he said through Descartes's replies. On 25 May 1637, Descartes said to Mersenne: "I

haven't sent you anything about … the passage from Saint Augustine, because it does not seem to me that he makes the same use of it that I do" (AT I.376). Mersenne must (p. 29) have referred to a work of Augustine containing the *cogito* and Descartes, having general knowledge about it, gives the gist of what will be his answer to Colvius, but puts off formally responding to Mersenne. On 15 November 1638, Descartes wrote to Mersenne: "I have searched for the letter in which you cited the passage of Saint Augustine, but I have not yet found it. I also have not yet been able to get the Works of this Saint, to see, in them, what you are asking about" (AT II.435). This is a continuation of the thread from the previous letter; Descartes does not deny knowing something about Augustine's views, but acknowledges that he still hasn't read over his works and checked the views expressed there against his own. It also seems that Mersenne is asking for the reference to Augustine from Descartes, which makes it fairly clear that Augustine's works were not readily accessible.[5] Finally, in December 1640, just a month after his letter to Colvius, Descartes writes to Mersenne: "You had previously alerted me about a passage from Saint Augustine concerning my 'I think therefore I am', about which you had, it seems to me, asked me again once more; it is in the 11th book of *On the City of God*, chap. 26" (AT III.261). We can conclude from these three fragments to Mersenne that Descartes, in the letter to Colvius, would not be denying that he is aware of Augustine's *cogito*, but simply that he does not have the texts before him to check carefully so that he can speak about the matter with authority. Once he does, his prior judgment (in his first letter to Mersenne) is confirmed.

Descartes's knowledge of his predecessors and contemporaries is not like ours. He cannot just pull a book off the shelf or download a file from a computer. In a sense, almost anything contemporary or prior to him is part of his context and, at the same time, few specific things can be affirmed with certainty as constituting his context. We can assume that Descartes has read and considered much of the works of his predecessors and contemporaries, but we cannot assume that he knows it in great detail, or that he has access to it in the way we do. With these provisos in mind I examine more specifically what Descartes himself reveals directly or indirectly to be the intellectual settings of his primary works: the *Discourse on Method, Meditations*, and *Principles of Philosophy*.[6]

2. Discourse on Method

In the aftermath of Galileo's condemnation for upholding the motion of the earth, Descartes decided he would not publish *The World*, containing the condemned proposition or anything else that might be controversial, but continued to work on his scientific treatises; his friends urged him to reconsider his decision. Ultimately, he determined (p. 30) "that it was easy for me to choose some matters that, without being subject to much controversy nor obliging me to declare more of my principles than I desire, would nevertheless allow me to show quite clearly what I can or cannot do in the sciences" (AT VI.75). Thus, in October 1635, Descartes decided to publish the *Dioptrics*, adding the *Meteors* to the project in November, and resolving to set off the two treatises with a short preface. The project took greater shape in March 1636 when Descartes reported that he

would include some other works as well; as he said, he wished to publish anonymously "four Treatises all in French, and the general title will be: *The Project of a Universal Science that can Elevate our Nature to its Highest Degree of Perfection*. *Then the Dioptrics, Meteors, and Geometry, in which the most curious Matters that the Author could have chosen to serve as proof of the universal Science he proposes are explained in such a way that even those who have never studied can understand them*". At this time, he was representing the introductory materials as: "In this *Project* I reveal a part of my Method, I undertake to demonstrate the existence of God and of the soul separated from the body, and I add to it several other things I believe will not be unpleasant to the reader" (AT I.339). Clearly, the plan grew from there. Eventually, Descartes published the work as *Discourse on the Method for Conducting One's Reason Well and for Seeking the Truth in the Sciences*, in six parts, together with *Dioptrics, Meteors*, and *Geometry*. He stressed that he did not call the work *Treatise on Method*, but *Discourse on Method*, because this would mean the same as *Preface* or *Notice (Avis) on Method*; as he said, he "had no plan to teach the method but only to talk about it". Descartes added that he refers to the treatises that followed as *Samples (Essais) of this Method* because "the things they contain could not be discovered without the method and one can know its merit through them". He also indicated that he "inserted some things of metaphysics, physics, and medicine" in *Discourse*, parts 4–6, "to show that the method extends to all kinds of subjects" (AT I.349).

Two clues about the context of the *Discourse* can be gleaned immediately from the title of the project. '*Discours*', which Descartes uses instead of '*Traité*', is an unusual word for setting out a "project of a universal science" or detailing a method. One does not frequently find '*discours*' associated with method or science in the titles of books before Descartes.[7] The word he deploys connotes a familiar and informal talk, but its meaning shifts a bit through the century, from "treating a subject sparingly"[8] and giving "a simple recounting and narration of something", to more generally being "an assemblage of sentences to express what one thinks".[9] Another word he uses, '*Essai*', is arguably more interesting. Its primary meaning is the same as our term 'assay', that is, a test of something: the strength of a drug, the safety of some food, or the purity of a metal.[10] But the word (p. 31) also gains new meaning as the title of any kind of work in which, "by modesty or otherwise, the author does not propose to go deeply into the subjects treated"; the *Dictionnaire de l'Académie française* even specifies the source of this usage as originating from the *Essays* of Montaigne.[11]

Descartes alludes to Montaigne from the very first sentence of the *Discourse*. He asserts: "Good sense is the best distributed thing in the world." Montaigne had said: "It is commonly said that the fairest division nature has given us is that of sense", and continued: "for there is no one who is not content with what she has allotted to him".[12] Montaigne's witticism is repeated by Descartes: "for everyone thinks himself to be so well endowed with it that even those who are the most difficult to please in everything else do not normally desire more of it than they have" (AT VI.1–2). In the first three parts of the *Discourse*, Descartes borrows liberally from Montaigne and his fellow-traveler Pierre Char-

ron,[13] repeating some commonplaces from Renaissance humanism, stressing skeptical, anti-Scholastic, and neo-Stoic themes.

Descartes, the philosopher who so famously excommunicates the past to start anew from stable foundations, is also the gentlemanly skeptic who gives advice about the advantages of history; in Part I of the *Discourse*, he asserts:

> reading good books is like having a conversation with the most distinguished people of past ages—indeed, a rehearsed conversation in which these authors reveal to us only the best of their thoughts … Conversing with those of past centuries is much the same as traveling. It is good to know something of the customs of various peoples, so that we may judge our own more soundly and not think that everything contrary to our own ways is ridiculous and irrational, as those who have seen nothing of the world ordinarily do.[14]

This analogy between reading and traveling is borrowed from the concept of erudition and history acclaimed by Montaigne and Charron, among others. For example, Charron, whose *La Sagesse* Descartes is known to have owned and read, writes:

> The ways of profiting through speech and exemplar are dual, since they are exercised and derived from excellent people, whether alive, in the course of meeting them and conferring with them physically and externally, or dead, as a result of reading their books … The former can be accomplished by … traveling and visiting foreign lands … The latter commerce with the dead, using books, is much more secure, more our own, more regular, and costs the least.[15]

(p. 32) An aspect of Renaissance thought espoused by Descartes in Part II of the *Discourse* is its critique of logic.[16] According to some humanists, formal logic—that is, syllogism—is useless; it may even be harmful. Montaigne reports that logic has no practical use, that its inventors must have been playing a game.[17] In the *Discourse*, Descartes also complains that syllogisms are useless: “they serve rather to explain to someone else the things one already knows, or even […] to speak without judgment on matters of which one is ignorant, rather than to learn them” (AT VI.17). Further, he worries that logic in general might be harmful: “although it contains, in effect, very true and good precepts, nevertheless there are so many others, mixed up with them, which are either harmful or superfluous, that it is almost as hard to separate the one from the other as to draw a Diana or a Minerva from a block of marble” (AT VI.17–18).

But some of the greatest similarities between Descartes and Montaigne and Charron can be found in Descartes’s “provisional code of morals”, from part III of the *Discourse*. Descartes’s first rule from the code is “to obey the laws and customs of my country, constantly holding on to the religion in which, by God’s grace, I had been instructed from my childhood” (AT VI.23). He accepts the *status quo* in ethics, politics, and religion, bracketing such issues until he has rebuilt his philosophy; as he says: “When I had thus assured myself of these maxims and put them to one side along with the truths of the faith … I judged that, as for the rest of my opinions, I could freely undertake to rid myself of

them” (AT VI.28). His second rule reinforces his initial decision; he decides to be “as firm and resolute in my actions as I could, and to follow the most doubtful opinions, once I had decided on them, with no less constancy than if they had been very well assured” (AT VI. 24).

His third rule, however, looks to be somewhat different than the first two; Descartes states: “My third maxim was always to try to conquer myself rather than fortune, and to change my desires rather than the order of the world” (AT VI.25). He indicates the origin of his third rule when he provides its justification. According to Descartes, he needs to accustom himself to believe that there is nothing completely in his power other than his thoughts; this would prevent him “from desiring anything but what I was to acquire, and thus to make me contented” (AT VI.25). He recognizes that in order to habituate himself to look at everything from this point of view he also needs to spend time on exercises—that is, to make frequent meditations. He confesses that it is principally in this “that the secret of those philosophers consists, who in earlier times were able to free themselves from fortune’s domination and who, despite sorrows and poverty, could rival their gods in happiness. For occupying themselves ceaselessly with considering the limits prescribed to them by nature, they so perfectly persuaded themselves that nothing was in their power but their thoughts” (AT VI.26). It does not take much imagination to recognize that the “philosophers” to whom (p. 33) Descartes is referring are the Stoics and that Descartes is acknowledging the genesis of his third rule as stemming from their teachings on morality. There was, in fact, a renaissance in Stoic philosophy at the end of the sixteenth, beginning of the seventeenth century; this resulted in the publication of a number of their works, including French translations of Epictetus’s *Enchiridion* (*Manual*). Descartes was well aware of these writings; later on he will freely discuss Seneca’s *Epistles* in his correspondence with Princess Elizabeth.

The 1594 French translation of Epictetus’s *Enchiridion* by Guillaume Du Vair was accompanied by a preface, *La Philosophie morale des Stoïques*, which Du Vair expanded and issued separately in 1600 and then again in his collected *Oeuvres*. There, one finds all the elements of Descartes’s third maxim and some aspects of his second. Du Vair argues that “the good of man consists in his use of right reason, that is, in virtue, which is nothing other than the firm disposition of our will to follow what is honest and suitable” (Du Vair 1641: 256). He disputes with those who contend that the good of man consists in health or wealth, since these are only means to an end and not the ultimate end for man. Our will alone is directed toward our good: “the well-regulated will wills only what it can; it will therefore prevent itself from willing what is not in our power, like having health, wealth, and honors … It is a divine and inviolable law, promulgated from the beginning of the world, that if we want to have some good, we must give it to ourselves. Nature has put the storehouse [of goods] in our mind; let us bring our will into our control and take from the storehouse whatever we would will” (Du Vair 1641: 257–8). Du Vair concludes that “the good of man and the perfection of his nature consists in the right disposition of the will to use things that present themselves through reason” (Du Vair 1641: 261) and he presages Descartes’s maxim by asserting that to attain our good would require us to “so regulate our desire that it can follow only what is according to nature, and not what is

contrary to it. Beyond our power are our bodies, our riches, our reputations, and, in a word, everything that does not depend on our will" (Du Vair 1641: 261–2).

Thus, as Descartes indicated, his third maxim is of Stoic origin; his second maxim may be so as well. His first maxim, however, like so many of the other attitudes and poses of the *Discourse*, is indebted to the works of Montaigne and Charron. According to Montaigne: "The wise person should withdraw his soul inward, away from the crowd, and allow it the freedom and power to judge things freely; but as for externals, he should wholly follow the received fashions and forms … For it is the rule of rules, and the general law of laws, that each person should observe those of the place he is in" (Montaigne I.23 1962: 125). And Charron echoes: "according to all wise persons, the rule of rules and the general law of laws is to follow and observe the laws and customs of the country one is in" (Charron 1983: 497; see also 500). Charron echoes as well some aspects of what will become Descartes's second maxim: "in the external and common actions of life, and in what has an ordinary use, one should conform to and accommodate common practice … I agree that people should adhere and hold on to what seems most likely, honest, useful, convenient" (Charron 1983: 387).

(p. 34) 3. *Meditations* on First Philosophy

In June 1637, Descartes began distributing copies of the *Discourse* to a great number of people. He even wrote to one of his old teachers, sending him the volume "as a fruit that belongs to you, whose first seeds were sown in my mind, just as I also owed to those of your Order the little knowledge I have of letters" (AT I.383). The attempt to promote his works by making them the focus of discussion was already part of Descartes's strategy. In Part VI of the *Discourse*, he had announced: "I would be very pleased if people examined my writings and, so that they might have more of an opportunity to do this, I ask all who have objections to take the trouble and send them to my publisher and, being advised about them by the publisher, I shall try to add my reply at the same time" (AT VI.75). Of course, Descartes did request objections from his teacher and from others of his order. But only a few people sent in objections. Descartes was asked whether foreigners formulated better objections than the French. He replied that he did not count any of those received as French other than those of the astrologer Jean-Baptiste Morin. He referred to a dispute with the mathematician and engineer Pierre Petit, which he dismissed, saying that he did not take Petit seriously but simply mocked him in return. He then listed the objections of the foreigners: Libertus Fromondus from Louvain and his colleague Plempius, an anonymous Jesuit (Jean Ciermans), and someone from the Hague (AT II.191–2). Still, the objections by Petit seemed to have rankled him, prodding him to write the *Meditations* in response. A recently discovered letter indicates that, until very late, the *Meditations* were intended to be introduced by a Latin translation of *Discourse* Part IV, and then a preface responding to Petit; Descartes removed these and inserted instead the Preface to the Reader with which we are familiar: "I was forced to soften what I had written about Mr. Petit, as you will see in the preface to the reader, which I sent you to have printed, if you please, at the beginning of the book after the dedicatory Epistle to the faculty of the

Sorbonne, and not to print the 4th part of the *Discourse on Method* or the small preface I put after it, nor the one that preceded the objections of the Theologian but only the Synopsis."[18]

The Preface to the Reader begins by indicating that he only "touched briefly on the issues of God and the human mind" in the *Discourse*, and alludes to the decision he made to write it in French because of its brevity: "I did not think it useful to hold forth at greater length in a work written in French and designed to be read indiscriminately by everyone, lest weaker minds be in a position to think that they too ought to set out on this path" (AT VII.7). He continues by sketching two objections that were made to *Discourse* Part IV, the first being "from the fact that the human mind, when turned in on itself, does not perceive itself to be anything other than a thinking thing, it does not follow that its nature or *essence* consists only in its being a thinking thing, such that the word *only* excludes everything else that also could perhaps be said to belong to the (p. 35) nature of the soul".[19] To answer the objection, Descartes asserts that his exposition follows an order, and distinguishes between an order of being and an order of knowledge: "I answer that in that passage I did not intend my exclusion of those things to reflect the order of the truth of the matter (I was not dealing with it then), but merely the order of my perception" (AT VII. 8).[20] He then connects the notion of order with a request to his reader to treat his work—*Meditations on First Philosophy*—as a step-by-step how-to manual leading its readers to meditate, in order for them to withdraw from their senses and passions: "I do not advise anyone to read these things except those who have both the ability and the desire to meditate seriously with me, and to withdraw their minds from the senses as well as from all prejudices. I know all too well that such people are few and far between. As to those who do not take the time to grasp the order and linkage of my arguments, but will be eager to fuss over statements taken out of context (as is the custom for many), they will derive little benefit from reading this work" (AT VII.9–10).

Since at least 1930 it has been customary to link these remarks—that is, the preoccupation for the order of reasons and the request for the reader to meditate, with the genre of religious meditation; Etienne Gilson points out the oddity of that association: "we are no longer surprised to read *Metaphysical Meditations*; these are, however, the first that history has known. The form *meditation*, adapted to the needs of religious souls who want to penetrate slowly certain truths, … has never seemed requisite for presenting abstract truths of a purely metaphysical order" (Gilson 1930: 186–7). In the 1950s, Martial Gueroult and others debated whether the spiritual exercises of Ignatius Loyola, the founder of the Jesuits, were the appropriate model for this kind of meditation. For the affirmative position was the fact that Descartes attended the Jesuit College of La Flèche for more than eight years and most likely participated in such exercises. Gueroult agreed that Descartes's *Meditations* was patterned after a religious meditation: "The use of the first person, the monologue of the soul, the recital of an experience of spiritual transformation, the constant temptation by old habits …, the effort to confirm the mind in its new path …, all these traits are specific to the religious genre: prayers, confessions, soliloquies, considerations, elevations, and spiritual exercises" (Gueroult 1985: II.305). However, he argued against the Ignatian style as the appropriate model for it. The issue he em-

phasized was that Descartes wanted readers to detach themselves from the senses, whereas, as Gueroult stated: “Ignatius proposed, in order to engender the force of religious sensation, that we set out to have concrete images arise in us—for example, to represent to ourselves the sufferings of Jesus in a vivid manner” (Gueroult 1985: II.294). (p. 36) Gueroult suggested instead “a spiritual elevation, in the fashion of the Neoplatonists, Plotinus, and Saint Augustine”.[21]

One does not have to look very far to find such Augustinian meditational books in the seventeenth century. Among Mersenne’s early works were two short religious tracts, *L’usage de la raison* and *L’analyse de la vie spirituelle* (both 1623). The first of the two religious tracts was rediscovered in 1978, but the second remains lost. Mersenne intended the two religious works as contributions to the genre of devotional exercises, to be placed alongside those of Ignatius and others. What makes Mersenne’s devotional exercises useful as part of the philosophical context of early seventeenth-century France, however, is Mersenne’s emphasis in these exercises on the intellect and will, away from the passions and senses. As he asserts in *L’usage de la raison*:

> I will take the paths I trace for heaven from inside yourself, so that at any moment you wish, in the midst of royal greatness, during banquets, dances, pastimes, day and night, in prosperity and adversity, whether poor or rich, caressed or abandoned, healthy or sick, you will be able to practice that which will be your salvation. I will take, therefore, the motions of the soul, insofar as it is rational and capable of accruing merit or giving offense, and I will set aside that which concerns the brutal passions, common to men and beasts … I therefore want us to suppose that the only path leading to heaven for those who have the use of reason and who remain within the order established by God is to train and perfect the spiritual actions and motions of the understanding and will.[22]

4. Principles of Philosophy

When, in 1640, Marin Mersenne was sending out the manuscript of the *Meditations*, Descartes thought himself at war with the Jesuits. He wrote to Mersenne that he will not travel that winter, since he is “expecting the objections of the Jesuits in 4 or 5 months” and believed that he “must put himself in the proper posture to await them” (AT III.184–5). For that reason he told Mersenne that he felt like “reading some of their philosophy—something I have not done in twenty years—in order to see whether it now seems to me better than I once thought”. Thus he requested that Mersenne send him “the names of authors who have written textbooks in philosophy and who have the most following among the Jesuits, and whether there are new ones from twenty years ago”. Descartes, reminiscing about the Jesuit textbook authors he had known at La Flèche, then said he (p. 37) remembered “only the Coimbrans, Toletus, and Rubius”, but also requested from Mersenne “to know whether there is someone who has written a summary of all of Scholastic philosophy and who has a following, for this would spare me the time to read all their heavy tomes”. Descartes recalled: “It seems to me that there was a Carthusian or

a Feuillant who had accomplished this, but I do not remember his name" (AT III.185). We do not have Mersenne's reply about the "Carthusian or Feuillant", but, presumably, he identified Eustachius a Sancto Paulo as the Feuillant Descartes remembered having written a summary of all of Scholastic philosophy in one volume, since, in his next letter to Mersenne Descartes wrote: "I have purchased the *Philosophy* of Brother Eustachius a Sancto Paulo", and added that Eustachius's *Summa* seems to him to be "the best book ever written on this matter" (AT III.232). Descartes continued to look for other Scholastic textbooks, seeking one as excellent as Eustachius's, but written by a Jesuit; in that process he looked over the *Philosophy* of Abra de Raconis (who, unfortunately for Descartes, was not a Jesuit). He wrote to Mersenne, "I have seen the *Philosophy* of Mr. Raconis, but it is not as suitable for my design as that of Father Eustachius. And as for the Coimbrans, their writings are too lengthy; I would have wished wholeheartedly that they had written as briefly as the other [Eustachius], since I would have preferred to have dealings with the society [that is, the Jesuits] as a whole, instead of a particular person" (AT III.251). Descartes also initiated another project, the precursor to the *Principles*: "My intent is to write in order a textbook of my philosophy in the form of theses, in which, without any superfluity of discourse, I will place only my conclusions, together with the true reasons from which I draw them—what I think I can do in a few words. And in the same book, I will publish an ordinary philosophy text, such as perhaps that of Brother Eustachius, with my notes at the end of each question, to which I will add the various opinions of others and what one should believe about all of them, and perhaps, at the end, I will draw some comparisons between these two philosophies" (AT III.233). A month later, he informed Mersenne that he had begun the project; but, unfortunately, it was soon aborted: "I am unhappy to hear about the death of Father Eustachius; for, although this gives me greater freedom to write my notes on his philosophy, I would nevertheless have preferred to do this with his permission, while he was still alive" (AT III.286).

The *Principles of Philosophy*, which replaced the proposed commentary on Eustachius, is a work patterned on Scholastic textbooks. Scholasticism is a key intellectual context for understanding the *Principles* and comprises as well a crucial context for all of Descartes's works. However, Descartes was taught Scholastic philosophy at La Flèche, and, as he said, he abandoned his study of it for about twenty years, roughly between 1620 and 1640, and he picked it up again only in 1640, to arm himself against the expected attacks of the Jesuits. We should expect that Descartes was most familiar with Scholastic philosophy (as represented by the Coimbran Jesuits or Franciscus Toletus, for example) when writing his earliest works, i.e. the *Rules*. The remnants of Scholasticism in Descartes's mature works—the *Discourse* and the *Meditations*—might therefore be somewhat deceptive for the interpreter. Finally, from 1640 on, in the *Replies* to the *Objections* to the *Meditations* and in the *Principles*, Descartes reconnected with Scholastic (p. 38) philosophy and terminology (in the form of Eustachius's *Summa*) and began the process of translating his doctrines to make them outwardly more compatible with Scholasticism.[23] One can detect Descartes's subtle shifts in doctrine or terminology by contrasting his early and later writings.

Descartes's primary works present approximately the same philosophy, expanding and contracting it for the purpose at hand. Of course there were developments and changes throughout. But one of the more astonishing differences was Descartes's radical change of genre and style: he could be working, in the *Discourse*, on an informal account of his philosophy and method, together with essays that exhibit the merit of that philosophy and method; he could be producing a manual for people to meditate with him about the foundations of his philosophy—that is, his metaphysics, in the *Meditations*; or, with the *Principles*, he could be issuing a collegiate textbook for the use of teachers in schools. All of these undertakings displayed the books he read, the models he was following, and the contexts that were appropriate as their intellectual background.[24]

References

Ariew, Roger (2011), *Descartes Among the Scholastics*. Leiden: Brill.

Ariew, Roger (2014), *Descartes and the First Cartesians*. Oxford: Oxford University Press.

Ariew, Roger, John Cottingham and Tom Sorell, eds. (1998), *Descartes' Meditations: Background Source Materials*. Cambridge: Cambridge University Press.

Baillet, Adrien (1691), *La Vie de Monsieur Des-Cartes*, 2 vols. Paris: Daniel Horthemels.

Baudry, Hervé (2015), *Le Dos de ses livres: Descartes a-t-il lu Montaigne?* Paris: Honoré Champion.

Bos, Erik-Jan (2010), "Two Unpublished Letters of René Descartes: On the Printing of the Meditations and the Groningen Affair", *Archiv für Geschichte der Philosophie* 92: 290–303.

Charron, Pierre (1983), *De la Sagesse*. Paris: Fayard.

Dictionnaire de l'Académie française (1694), *Dictionnaire de l'Académie française*, 1st edition. Paris: Jean Baptiste Coignard et Veuve.

Dictionnaire de l'Académie française (1762), *Dictionnaire de l'Académie française*, 4th edition. Paris: Veuve B. Brunet.

Dictionnaire de l'Académie française (1798), *Dictionnaire de l'Académie française*, 5th edition. Paris: J. J. Smits.

Du Vair, Guillaume (1641), *La Philosophie morale des Stoïques: Oeuvres*. Paris: Cramoisy.

Gilson, Etienne (1925), *Discours de la Méthode, texte et commentaire*. Paris: Vrin.

Gilson, Etienne (1930), *Etudes sur le rôle de la pensée médievale dans la formation du système cartésien*. Paris: Vrin.

Gueroult, Martial (1985), *Descartes' Philosophy Interpreted According to the Order of Reasons*, trans. Roger Ariew, 2 vols. Minneapolis: University of Minnesota Press.

(p. 39) Hatfield, Gary (1986), “The Senses and the Fleshless Eye: The Meditations as Cognitive Exercises”, in Amelie E. Rorty (ed.), *Essays on Descartes’ Meditations*. Berkeley: University of California Press, 45–79.

Marion, Jean-Luc (1995), “The Place of the *Objections* in the Development of Cartesian Metaphysics”, in Roger Ariew and Marjorie Grene (eds.), *Descartes and His Contemporaries: Meditations, Objections, and Replies*. Chicago: University of Chicago Press, 7–20.

Montaigne, Michel de (1962), *Oeuvres Complètes*, ed. M. Rat. Paris: Gallimard.

Nicot, Jean (1606), *Le Thresor de la langue francoyse*. Paris: David Douceur.

Ramus, Petrus (1555), *La Dialectique*. Paris: André Wechel.

Rubidge, Bradley (1990), “Descartes’s *Meditations* and Devotional Meditations“, *Journal of the History of Ideas* 51: 27–49.

Sanchez, Francisco (1581), *Quod nihil scitur*. Lyon: A. Gryphiu.

Notes:

([1]) “*peregrinandi cupidus*”, as Isaac Beeckman said (AT I.30).

([2]) One way of making sense of Descartes’s assertion is to think of it as an allusion: it was reported that, at the Council of Trent, a Bible and St. Thomas’s *Summa Theologiae* were placed on the altar to assist the Council in its deliberations. Thus the assertion might be a way of saying “at least I have the essentials”.

([3]) One can easily count more than a dozen books: see, for example, *To Mersenne*, 8 October 1629, AT I.25; *To Mersenne*, 1631, AT I.219–21; *To Mersenne*, 3 May 1632; *To Mersenne*, November–December 1632, AT I.263; *To Morin*, September/October 1634, AT I.313; *To Golius*, 19 May 1635, AT I.318; *To* ***, 30 August 1637, AT I.394; *To Huygens*, 28 March 1636, AT I.602; *To Mersenne*, 13 July 1638, AT II.247; *To Mersenne*, 30 April 1639, AT II.530; *To Mersenne*, 27 August 1639, AT II.570.

([4]) Descartes also had to defend himself against the allegation that he claimed credit for Galileo’s “discovery” of the telescope; see AT II.26.

([5]) They seem not to have been readily available even to Mersenne, who resided in the center of Paris at the Minim’s convent.

([6]) I am limiting my discussion to the *Discourse* and will not discuss the *Essays* published along with it. I also do not intend to delve into the intellectual context of the *Passions of the Soul* and will set aside unpublished works such as the *Rules, The World*, and *Search for Truth*.

([7]) There is not much more than Bernard Palissy’s *Discours admirables, de la nature des eaux et fonteines*, V. A. D. L. C.’s *Discours des causes et effects admirables des tremble-*

mens de terre, and Alexandre de La Tourrette's *Bref Discours des admirables Vertus de L'Or-Potable*.

([8]) Echoing Descartes's letter to Mersenne of March 1637 (AT I.349, cited above), Baillet characterizes the *Discours* as "une ébauche d'une juste Dialectique, dont il s'est contenté de donner quelques traits" (Baillet 1691: 282).

([9]) See *discours* in *Le Thresor de la langue francoyse* (1606) and *Dictionnaire de l'Académie française* (1694).

([10]) See *essai* in *Dictionnaire de l'Académie française* (1762).

([11]) See *essai* in *Dictionnaire de l'Académie française* (1798).

([12]) Montaigne II.17 (1962: 641). For an extended argument that there is no proof that Descartes had read Montaigne, see Baudry 2015. The author, however, provides extensive evidence of the parallel passages between the two authors. Clearly, such a thesis depends upon what one thinks would be "proof" for such a proposition.

([13]) See Gilson 1925.

([14]) Descartes also writes about some of the disadvantages of history; see AT VI.5–6.

([15]) Charron 1983: 696. In contrast, Descartes's elaborations about the disadvantages of history are part of his own general critique of humanist methods (*Search for Truth*, AT X. 502).

([16]) Descartes had previously formulated such a critique in the *Rules* 2 and 10 (AT X.365 and 406).

([17]) Montaigne, II, 12 (1962: 466; see also 488). For similar such arguments, see Ramus, 1555: 138–9, and Sanchez 1581: 7–11.

([18]) *Descartes to Mersenne*, 27 May 1641; Bos 2010: 295. See also Marion 1995.

([19]) The second objection: "it does not follow from the fact that I have within me an idea of a thing more perfect than me, that this idea is itself more perfect than me, and still less that what is represented by this idea exists" (AT VII.7–8). Petit is alluded to in the next paragraph: "In addition, I have seen two rather lengthy treatises, but these works, utilizing as they do arguments drawn from atheist commonplaces, focused their attack not so much on my arguments regarding these issues, as on my conclusions."

([20]) And he emphasizes order in his reply: "what I had in mind was that I was aware of absolutely nothing that I knew belonged to pertain to my essence, save that I was a thinking thing, that is, a thing having within itself the faculty of thinking. Later on, however, I will show how it follows, from the fact that I know of nothing else belonging to my essence, that nothing else really does belong to it" (AT VII.8).

([21]) Gueroult 1985: II.229. There is an extensive literature on the subject; see, for example, Hatfield 1986 and Rubidge 1990.

([22]) Ariew, Cottingham, and Sorell 1998: 138–9. Mersenne asserts that his method “has been taught very excellently by the great bishop of Geneva in his Theotime”, a reference to Saint François de Sale and his *Treatise on the Love of God* (1616). De Sale’s work, a manual for practicing spiritual reading, meditation, and prayer, in an Augustinian, not Ignatian tradition, enjoyed wide popularity.

([23]) See Ariew 2011 and 2014: ch. 2.

([24]) One could also mention the geometrical exposition of the *Meditations* in ‘synthetic’ style, in the Appendix to *Replies* II, and the courtly dialogue constituting the unfinished *Search for Truth* as other genres with which Descartes experimented.

Roger Ariew

Department of Philosophy, University of South Florida

Descartes’s Correspondence and Correspondents

Theo Verbeek and Erik-Jan Bos

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Abstract and Keywords

Descartes’s correspondence is an integral part of his work. Several important theories and doctrines can be known only from the correspondence, or, on the basis of the correspondence, must be qualified or can be rendered more precise. It is also through his letters that we learn about Descartes’s publishing strategies, his opinion on his contemporaries and their work, and his interest in experiments and observations. From time to time Descartes’s letters also allow us a glimpse of his daily business. In brief, the correspondence can be seen as an intellectual laboratory. This chapter examines Descartes’s voluminous correspondence and discusses a few of his correspondents. It also considers the epistolary form and content of his letters, and situates them in the context of other philosophical correspondences in this period.

Keywords: correspondence, correspondent, letters, autograph, Mersenne, Clerselier, Elisabeth, Regius, Huygens, biography

(p. 40) 1. Introduction

UNTIL the emergence of learned journals like the *Journal des savants* and the *Philosophical transactions of the Royal Society* (both started in 1665), letters were one of the main vehicles of philosophic and scientific communication.[1] They were shared and discussed in mostly informal gatherings. In Paris there were many such groups, some with a literary, others with a philosophical or mathematical orientation, but quite often fairly mixed.[2] Thus, in their *académie* or *cabinet*—actually a daily ‘at-home’ in the library of their late patron Jacques-Auguste de Thou (1553–1617)—the brothers Pierre (1582–1651) and Jacques Dupuy (1591–1656) welcomed visitors as diverse as Rubens (1577–1640), Campanella (1568–1639), Grotius (1583–1645) and, in his Parisian period (1625–8), probably also Descartes.[3] They came to talk and gossip, exchange news, read books and manuscripts from the library. At the same time the *cabinet* served as a cultural news agency with correspondents in the French province and abroad, whose letters were read aloud and discussed.[4] Similarly, in the Minim convent on the *Place Royale* (now *Place des Vos-*

ges) Mersenne welcomed philosophers and mathematicians to exchange ideas and (p. 41) observations. From 1635 this took the form of a regular *académie*, convening every Thursday. Visitors included virtually everyone in Paris interested in mathematics, philosophy, or science, like Desargues (1591–1666), Gassendi (1592–1655), Hobbes (1588–1679), Roberval (1602–75), Étienne Pascal (1588–1651), and Beaugrand (*c*.1585–1640), although typically hardly any professional academics. They discussed a paper by one of them, read the letters Mersenne received, and suggested reactions. Among Mersenne's correspondents were Fermat (*c*.1600–65), Peiresc (1580–1637), Galileo (1564–1642), Torricelli (1608–47), and Descartes, to cite only the very best known.[5] The existence of such groups is one of the reasons why most letter writers kept an archive. Given a letter's ephemeral nature (it could be lost in the mail, be destroyed, be tampered with), they needed something for future reference and, in many cases, publication. This not only assured the survival of their correspondence but also turns their letters into an indispensable supplement of their published work, showing their evolution, motives, strategies, and network. Moreover, the fact that letters circulated in a semi-public domain allows an understanding of how, through an exchange connecting widely distant centres of learning, ideas were formed and transformed, how fast they spread, by whom they were picked up or rejected, modified, or ignored. The correspondences of Mersenne, Oldenburg (1618–77), and Leibniz (1646–1716) read as running journals of all important philosophical, theological, and mathematical discussions in Europe.[6]

A large part of Descartes's correspondence conforms to this model. Although not as voluminous as Mersenne's (of which almost 1,500 letters survive) or Oldenburg's (almost 4,000), let alone Leibniz's (about 20,000), it is large and significant enough to be an important source, also because his correspondence with Mersenne allowed him to participate in discussions in France, while at the same time preserving a carefully protected distance. More importantly, perhaps, by rejecting scholastic philosophy Descartes no longer had at his disposal a standard format, nor a standard set of problems. Descartes's letters, rather than his books, show how he struggled to give his philosophy substance, form, and unity. In the following we deal, in Sections 2 to 4, with some material aspects of Descartes's autograph letters and the various editions of the correspondence. In Section 5 we take a closer look at several of Descartes's correspondents and the subjects treated in their correspondence.

2. Descartes's Autograph Letters

Receiving a handwritten letter from René Descartes must have been something special. If the addressee was a correspondent of Descartes, he or she would immediately recognize (p. 42) the philosopher's characteristic handwriting. The frontside of the letter mentioned the name of the correspondent, with correct form of address, and some descriptive postal directions ("At the Two Cockerels near the Cattle Market" (Beeckman), "At the convent of the Minims near the Place Royale" (Mersenne), "Professor at the Academy" (Reneri), followed by the place name. The backside was unwritten, there was no mention of the sender, but Huygens, for example, who received numerous letters and packages every

day, would immediately pick out Descartes's letter by the familiar italic hand that had written the address in black ink: *A Monsieur/Monsieur de Zuylichem/Chevalier, Conseiller /et Secretaire de son Altesse* (Knight, Counsellor and Secretary to His Highness)/*A la Haye*.[7] Whenever Huygens was accompanying the Prince of Orange on a military campaign, Descartes changed "At The Hague" for "With the army", and that usually worked just as well. The seals, in red, green, or black wax, revealed Descartes's signet, and authenticated the epistle. The signet showed the interlaced letters 'R C', the initials of 'René des Cartes'; indeed, the habit to write his name as 'Descartes' was not Descartes's own. Occasionally Huygens had to cut coloured silk floss wrapped around the letter to open it; besides being an additional safety measure, a flossed letter was also a particularly pretty favour.[8]

Once opened and unfolded a striking feature of an autograph letter by Descartes is the wide top and left margins, reflecting the esteem for the correspondent. Good writing paper was an expensive commodity, and very wide margins signalled that the receiver was worth it. The disregard of the costs was further emphasized when the text filled just one page, so the back could have served for the superscription and address, but Descartes would still use a sheet folded in half (producing four pages, the most common size) for the letter. The second and third page (or page one *verso* and two *recto*) were blank, the address being found on the last page (two *verso*). Another manner to enhance a letter was the quality of the paper, which, if the right kind of ink was used, also contributed to the letter's preservation. Some of Descartes's letters are still in such mint condition it is hard to believe they are almost 400 years old. Usually there were no, or just a few, deletions to be found in the text, as if the letter was written in one fluent movement. Actually, Descartes first wrote a draft, which he subsequently copied on quality paper. The letters to Mersenne prove that such paper was not cheap. Descartes wrote so many lengthy letters (or perhaps we must say that Mersenne demanded extensive replies to his numerous questions) that he kept a watchful eye on the paper costs. The paper quality of these letters is much poorer than of those to Huygens, and the margins are much smaller. The handwriting in the letters to Mersenne is moreover much smaller, which results in a much higher information density, the one thing that really counted in missives to Mersenne. In the letters to Mersenne, empty space was a waste, as shown by remarks (p. 43) such as "I have answered all your questions, but I still have some space left, so I can tell you that, *etc*.", which occur every now and then.

The letter starts with a salutation, simply "Monsieur" to Huygens, or "Mon Reverend Pere" to Mersenne. The body of the text starts on a new line. Descartes's handwriting is an elegant and clear italic script, comprehensible to present-day readers. Once you realize that the use of the letters 'u' and 'v' differs from ours ("vn liure" = "un livre"), that apart from the short 's' there is also a long 's', and that typically Descartes always writes an 'i' where most people nowadays use a 'j' ("ie pense donc ie suis"), reading Descartes's autographs poses no real palaeographical challenge, unlike the handwriting of many of his contemporaries. The beautiful physical appearance of the letter was matched by interesting contents and/or a superb epistolary style.[9] Even a letter of thanks or a note asking back a manuscript can be a little literary gem. Receiving a handwritten letter from

Descartes must have been nothing short of a delight, unless of course he considered you an enemy exposing you to vile rhetoric. But even in that case the letter closed with the repetition of the salutation, on a separate line, and the assurance that Descartes remained “your very humble and obedient servant”. The date and place, and the signature “Des Cartes” (no first name) bring the letter to a close.

3. The Problematic Sum Total of the Letters

At present, 197 autograph letters of Descartes are known to have survived the tempest of time. The largest collection by far is kept at the *Bibliothèque nationale de France* (BnF) in Paris, followed at some distance by the library of the Institut de France (Paris), and the libraries of the University of Leiden and the Sorbonne. The number of surviving autograph letters addressed *to* Descartes is considerably lower: fifty-three, the majority written by Huygens (forty-seven). The main reason for this disparity is that most letters in Descartes’s possession, the letters addressed to him, disappeared around 1700. The imbalance is thus typical for the correspondence as a whole, which comprises about 767 letters, 582 of which are written by Descartes, and 185 written to him. Huygens’s letters are still extant, because they were returned to him shortly after Descartes died, and he carefully archived the letters exchanged between them. Huygens, apparently fond of Descartes’s handwriting, once asked Descartes, when he gave the Frenchman a document the latter wished to copy, not to return the original: he preferred the copy in Descartes’s hand (cf. AT III.815, 819, 836–59).

It is practically impossible to give a precise number of the letters in the extant correspondence. The number of 767 letters is an artificial estimation. If original, autograph letters were our only source, there would not be much of a problem. Unfortunately, most letters in the correspondence are not autographs, but manuscript copies, or, and these (p. 44) make up the largest number, printed sources. The principal printed sources are the edition of Descartes’s correspondence edited by Claude Clerselier, and the biography by Adrien Baillet (1691).

Clerselier became Descartes’s literary executor after receiving the manuscripts that Descartes had left behind in Stockholm in 1650. Initially, Pierre Chanut, the French ambassador in Sweden, took care of the legacy, toying with the idea of publishing some of the letters, but eventually left it to his brother-in-law Clerselier to prepare an edition. Instead of an anthology, Clerselier, himself one of Descartes’s correspondents, published 334 letters in three major volumes (Descartes 1657–67). Most of the letters addressed to Descartes he did not publish, partly because their authors objected, like Princess Elisabeth and Henricus Regius, partly because he simply did not have them. Descartes’s own letters he published in varying degree of completeness. Some are complete with date, place, and addressee, presumably printed after well-prepared copies, but many letters lack these particulars because the bulk of the material consisted of draft versions of letters. Moreover, the editor mixed up letters allegedly due to the disarray of the manuscripts, presenting the contents of different letters as one. This became apparent when

subsequent editors were able to compare the versions printed in Clerselier's edition with autograph letters. Recently, it has been pointed out that the letters to Regius in particular suffered from Clerselier's tendency to put various loose fragments together to form a single letter, and that two 'letters' served as a dustbin for numerous fragments left over when Clerselier had reached the end of his correspondence project.[10] Nevertheless, Clerselier was right in his judgement that the correspondence was an extremely valuable and necessary addition to Descartes's own publications. The volumes sold well, as did their Latin and Dutch translations. Nowadays, Clerselier's edition is still our only source for 228 letters. That number is an estimation, because we will never know how many texts presented as a single letter are actually the result of patchwork.[11]

Baillet's *La vie de Monsieur Des-Cartes* (1691) is another major source for the correspondence. He was able to draw on a wealth of manuscripts; not only those that had been in Clerselier's possession, but also many more that were actively sought after in various countries in view of the biography, and of a new enlarged edition of the correspondence, which was never realized. Baillet lavishly adorned his biography with excerpts, quotes, summaries of the correspondence, also referring to many letters in passing. Baillet's biography provides information regarding ninety-eight letters which are not known otherwise, including Regius's letters to Descartes (thirty-two), and Descartes's letters to Claude Picot (also thirty-two).

Obviously, a mere reference to a letter is not the same as the actual text of the letter in whatever format, but references can be nevertheless be interesting additions contributing to our knowledge of Descartes. The editors of the modern standard edition, Charles Adam (1857–1940) and Paul Tannery (1843–1904), therefore included such testimonies, as well as quotes from or summaries of letters, if these are the only sources available for (p. 45) these letters. The principle of inclusion in the correspondence is up to some degree arbitrary, and perhaps necessarily so. As the source for some event in Descartes's life, Baillet may refer to two letters, but it might be difficult to conclude what exactly he took from these letters, let alone from which of the two specifically. Such a reference is presented in AT under a single heading. By contrast, in a letter to Mersenne, Descartes may be answering three different letters from Mersenne, of which Descartes supplies the date, and we can, by Descartes's point-by-point reply, get a clear picture of their contents. Nevertheless, these three letters are not incorporated separately in the correspondence, whereas an utterly vague reference of Baillet or by someone else is. This practice could be remedied, but editors since AT have largely refrained from doing so. The above shows the practical difficulties in giving a precise number of the letters in Descartes's surviving correspondence.

4. From Clerselier to the Present Day

As remarked above, along with the biography by Baillet, a new edition of the correspondence was also envisaged. After Roberval's death in 1674, about seventy-five of Descartes's letters to Mersenne, which Roberval had kept from Clerselier, were be-

queathed to the *Académie des Sciences*. They were inventoried by the mathematician Philippe de La Hire (1640–1718), who discovered major textual differences between the autographs and the texts published by Clerselier. This prompted Jean-Baptist Legrand to prepare a new edition. He had already received the Cartesian manuscripts from Clerselier and a small sum of money to produce a last volume with texts still unpublished. Legrand opted for a new, corrected, and enlarged edition of the correspondence, but the edition never materialized. A copy of Clerselier's edition, however, bears witness to the editorial work by Legrand (and possibly Baillet, who worked on the biography). In this so-called *Exemplaire de l'Institut*, as it is kept in the library of the Institut de France, the "new" letters to Mersenne were collated with the published texts, and dates were added when missing in Clerselier's edition. Although many dates can now be rejected, in some cases the annotator(s) of the *Exemplaire* could draw on manuscripts no longer available, and are thus of value.[12]

Shortly after Legrand's death in 1704 all manuscripts vanished without a trace, and must be considered as lost, except for the letters to Mersenne at the *Académie*. These, however, were stolen by the infamous rare book and manuscript thief Guglielmo Libri (1803–69), who sold them to autograph collectors. Over the years, some have returned to the Institut de France, from which library they were taken; others ended up in the Bibliothèque Nationale de France (BnF). In 2010 and 2011, two more letters were returned to the Institut.

(p. 46) Adam and Tannery started their monumental edition in 1897 (Descartes 1897–1913), which concluded with a separate biography by Adam in 1910, and a supplement in 1913. The first five volumes are devoted to the correspondence, with additions in volume 10 and the supplement. The editors retrieved quite a few of Descartes's original letters, publishing almost 600 letters in all. Moreover, they made systematic use of Baillet's biography and of the *Exemplaire de l'Institut*. Finally, the project led many historians and collectors to come forward with new findings.

The most dramatic addition to the corpus of letters was the publication of the autograph collection of the Descartes–Huygens correspondence by Leon Roth (Descartes 1926). It contained no less than 115 letters, most of them completely unknown. After the publication the collection was donated by the owner, the English Buxton family, to the BnF. Confronted with this new material, Adam recognized that many letters in the AT edition could be re-dated (Adam 1933), and his conclusions found their way into a new edition of the correspondence, which he undertook together with Gérard Milhaud (Descartes 1936–63). The edition is little known outside France, it is not a critical edition, and it does not contain any notes; all Adam and Milhaud added were very brief biographies of Descartes's correspondents. Moreover, the dating of the letters is still far from perfect.

An attempt to replace the old AT edition was made in the 1960s. Realizing that a completely new edition would be very laborious, the editors of the 'nouvelle édition' opted for a photo-mechanical reprint of the original edition, expanding each volume at the back with the corresponding 1913 supplement material, the letters from the edition by Roth,

and whatever had been discovered since, as well as their own notes and corrections (Descartes 1964–71). Although the correspondence was thus more or less brought up to date, the edition as such became very difficult to handle, and still left many problems regarding chronology, identity of the correspondents, and the texts themselves unanswered. The cheap pocket-size reprint in 1996 became very popular, but did not contain reference to discoveries made since 1971. The most noteworthy among the resurfaced letters are a letter to Cornelis van Hogelande (1590–1662) from late 1639 or early 1640 containing a (harsh) judgement on the pansophical endeavours of Jan Amos Comenius (1592–1670), and a letter to Mersenne of 27 May 1641, supplying many unknown details on the publication of the *Meditations*.[13]

Neither Descartes (1936–63) nor the new edition of AT triggered much interest in Descartes's epistolary legacy. This changed during the fourth centenary of Descartes's birth, when a four-day international congress specifically targeted the correspondence (Perugia, October 1996). The publication of the contributions, covering the very many facets of the correspondence, is aptly captured by Jean-Robert Armogathe as showing Descartes's "intellectual laboratory".[14] It proved to be the occasion for numerous (p. 47) subsequent studies, editions, and translations, and at present the attention for the letters is unabating. To mention just a few: Verbeek, Bos, and van de Ven 2003 provides a critical edition of one year: 1643; it offers textual improvements and supplied various new dates. Giulia Belgioioso and her team published an edition of the complete correspondence with Italian translation, taking into account the insights gathered since the old AT edition (Descartes 2009). The increasing interest in the whole corpus of letters is shown by complete translations in Rumanian (Descartes 2014–present) and Japanese (Descartes 2012–16). The scholarly edition with German translation of the correspondence with Princess Elisabeth is also worth mentioning here (Descartes 2015). Finally, an actual new critical edition of the correspondence, with complete English translation, is currently being prepared.[15]

5. Some Correspondents

Not all of Descartes's correspondence functioned in a network of scientific communication. Indeed, even if we disregard the correspondence with his family, fragments of which survive in Baillet, neither Descartes's letters to Constantijn Huygens (1596–1687) nor those to Princess Elisabeth (1618–80) and Henricus Regius (1598–1679), to mention only a few, were meant to be seen by others. In fact, only the correspondence with Mersenne is of that format.

5.1. Constantijn Huygens

As to Huygens, long before Descartes wrote him his first letter, it becomes clear that the relation he aimed at with respect to Descartes is one of patronage. In a letter to Jacob Golius (1596–1667), professor of oriental languages and mathematics at Leiden, who early in 1632 invited Descartes at his Leiden home to present his optics, Huygens, who was

among the guests, not only shows himself much impressed by the "admirable Frenchman", but also urges Golius to prevent him from leaving the country, as Descartes apparently intended to do, before publishing his findings. According to him "it would be against reason to deprive the inhabitants of this country of the fruit sown in their soil". At the same time, Huygens does not "think so lowly of himself" as to beg "that man to be [his] friend, nor [does he want to be] so indiscrete as to disturb the obscurity he seeks in order to enlighten posterity better". It was up to Golius to "prevent [Descartes] from begrudging himself entirely to his age by saying simply that it is bad luck we were not (p. 48) born later".[16] Whereas Huygens presents his request as a matter of cultural policy, Golius's reply shows he understood it as an offer of patronage: if Descartes could be brought to accept Huygens's support and protection, that would confirm the latter's position as a promotor of the arts and sciences. However, Golius's letter also shows that, politely but firmly, Descartes declines that offer and prefers obscurity.[17] A second attempt, mediated by David le Leu de Wilhem (1588–1658), already a patron of Descartes's friend Henricus Reneri (1593–1639) and eventually Huygens's brother-in-law, was no more successful: in response to what must have been an offer of support, Descartes declares not to know "how to respond to the courtesy of Mr Huygens, apart from cherishing the honour of his acquaintance", and promises to "miss no opportunity to see him".[18] In other words, he appreciates good relations with Huygens, but refuses to give up his independence. Apparently all he expects from all those who want to promote the sciences is already, as he put it in the *Discourse* a few years later, that they "contribute to the expenses of his observations and prevent unwelcome visitors from wasting his time".[19] Moreover, patronage is essentially public, whereas, if in these days Descartes thinks of any publication at all, it must be in France and anonymous.[20] Finally, patronage presupposes inequality in rank and socials status, whereas Descartes must have seen Huygens as his equal, perhaps even as being of inferior rank, given the fact that he was not a nobleman and only the private secretary of a high servant of a republic.

It is in 1635 only that a face-to-face meeting between Descartes and Huygens could be arranged. The reason for that delay cannot be alone that Huygens was an extremely busy man, nor that for the last two years Descartes had lived in Deventer, far from Amsterdam and The Hague.[21] Having been rebuked at least twice, Huygens may have been hurt in his pride, whereas Descartes presumably did not become less attached to his independence. Those sensibilities, however, must have been overcome, for it was the beginning, not only of a large correspondence (second in volume only after that with Mersenne), but also of the project of the *Discourse*, by which Descartes reversed the decision of 1634 not to publish anything during his lifetime.[22] Even though there is no (p. 49) hard evidence to prove that the *Discourse* was Huygens's idea—if it was, Golius and Reneri probably had the same idea—it is Huygens who, more than anyone else, provided actual assistance: he finds a lens grinder to help Descartes construct the machine to produce hyperbolic lenses he discusses in the *Dioptrics*; he invites Descartes to The Hague to see what other unpublished manuscripts could be published as well; he suggests an alternative when the intended publisher of the *Discourse* is not available; he uses diplomatic messengers to forward the manuscript; he mediates to obtain a printing licence; and with his wife and sis-

ter he checks the *Discourse* on printing errors.[23] In fact, Descartes owed Huygens a great debt, which, however, he never publicly acknowledged. On the contrary, Part 6 of the *Discourse* reads as a long, albeit a very gentle, rebuke of all those—but, in fact, Huygens, Golius, and Reneri—who offered support and exerted pressure.[24]

For Huygens that was not the end of the story. As soon as the *Discourse* was published he asked Descartes for "three sheets of paper" (*trois feuillets*) on mechanics. Descartes grudgingly delivered, but intimated that he did not want a publication: the treatise would not be complete; the best part would be missing. Moreover, that would be Huygens's own fault because he had asked only for a few pages. Although, therefore, Huygens was free to do as he liked, the text being his property, he understood perfectly what Descartes preferred him to do—or rather not to do—and the text was not published until after Descartes's death.[25] Descartes may have had good philosophical reasons, given the fact that the relation between his mechanics and physics is not unproblematic, but a serious argument was certainly also that, in the event of a publication, a dedication to Huygens could hardly be avoided.[26] Reminding Descartes of this earlier attempt, and taking advantage of his good mood (caused by a favourable judgement of Groningen University), Huygens tried a second time in 1645, asking Descartes for a treatise on chemistry. Descartes replied that all he knew about that was already published; that work in chemistry would make it necessary to work with others; and that, luckily, (p. 50) there was still enough he could do alone.[27] Again, the argument is not entirely futile, but perhaps should not be taken too seriously. Descartes's actual message seems to be that he does not write on command—in other words, that Huygens must not see himself as his patron. In fact, although the relation between the two men remained polite and even cordial, in many ways the correspondence tells the story of a failed relationship. It is hardly a surprise that in his autobiography Huygens has nothing to say on his relation with Descartes, despite the fact that by the time of writing (1678) Descartes was a very famous philosopher.[28]

5.2. Princess Elisabeth

Someone who eventually did become a patron—Descartes dedicated the *Principia* (1644) to her, a significant gesture—was Princess Elisabeth, the eldest daughter of Frederick V (1596–1632), Elector Palatine and for a short while (1619–20) King of Bohemia, and Elisabeth Stuart (1596–1662). After Frederick's defeat in the *Battle of White Mountain* (8 November 1620), his loss of the Bohemian crown and the invasion of the Palatinate, the family sought asylum in The Hague, Frederick being a first cousin of the Dutch stadholders.[29] Elisabeth was tutored privately (in classics and mathematics) at Leiden, but after the death of her father joined her mother in The Hague. In fact, her weak constitution, the mismatch between her intellectual ambitions and court life, as well as the misfortunes of her family must have made her profoundly unhappy.[30] Some of that is echoed in her letters to Descartes, which at times are intensely personal. It is not exactly known in what way the contact with Descartes was established. A role was certainly played by Alphonse Pollot (1602–68), a friend and correspondent of Descartes and a regular guest at the Bohemian court in The Hague, who occasionally also carried Elisabeth's letters.[31] Perhaps also by Samson Johnson (1603–61), the chaplain of Elisabeth's (p. 51) mother, who is said

to have been an ardent Cartesian.[32] Or by Descartes's friend Henricus Regius, who visited the princess in The Hague shortly before she wrote her first letter.[33] In any case, Elisabeth seems to have "thoroughly enjoyed" Descartes's theories, and discussed them frequently, one such discussion being on record for 10 June 1643, the date of her second letter to Descartes.[34] Moreover, previous to their correspondence Descartes had already met her, although the occasion would have made him unable to speak.[35]

Elisabeth's first letter is on the mind–body relation, which she finds hard to understand: How can the soul move the body in voluntary action, given the fact that normally a body is set in motion by another body? More particularly, she wants a definition of the soul's "substance separate from her action, that is, from thinking".[36] Descartes answers by claiming that our mind contains "primitive notions" (*notions primitives*), some general, like "being", "number", "duration", and others more particular, like "extension", which applies only to bodies, "thinking", which applies only to souls, and "union of body and soul", which applies only to man as a feeling and acting being. The main task of philosophy being to prevent their confusion, it would be futile to attempt an understanding of the union of mind and body starting from an understanding of either the mind or the body.[37] Although primitive notions cannot be further explained or defined, we grasp them, as Descartes explains in a second letter, provided we have a clear view of our mental operations: the soul is known by the pure intellect, the body also by the intellect but "much better by the intellect assisted by the imagination" (that is, by mathematics), whereas, "what belongs to the union of the soul and the body is known only obscurely by the intellect alone and even by the intellect aided by the imagination, but very clearly by the senses".[38] In brief, the only way to "understand" the union of body and mind is by feeling and acting. Although the argument is not entirely new—Descartes himself refers, rather inadequately, to the *Sixth Replies*[39]—it can be found only in this letter.

It was the beginning of a correspondence which led Descartes to write the *Passions de l'âme* (1649). The first time a revised moral theory is mentioned is still largely ironic: after receiving a copy of the *Principia* (which was dedicated to her), Elisabeth thanks Descartes for this "public testimony" of his friendship, and suggests that "a new morality" (p. 52) would be needed to make her worthy of it.[40] It becomes more serious one year later when, before long, a shared reading of Seneca is replaced by a straightforward discussion of Descartes's own ideas.[41] Still, Elisabeth's request for a definition of the passions, which would explain "how their force makes them especially useful if they are subjected to reason", is met with some hesitation.[42] In fact, Descartes finds it hard to produce an "enumeration" (*dénombrement*), that is, a reasoned inventory serving as the basis for an explanation.[43] A few months later, though, Descartes sent Elisabeth a "treatise of the passions", presumably a draft of what is now Part 2 of *Les passions de l'âme*, while inviting her comments.[44] However, there were many distractions on both sides. Descartes made two journeys to France, in 1647 and 1648, and in the summer of 1646 Elisabeth was sent away from The Hague to stay with her aunt in Berlin.[45] More importantly, perhaps, from 1646 Pierre Chanut (1600–62), French ambassador in Stockholm, tried to attach Descartes to the court of Queen Christina (1626–89). Descartes hesitated, also, presumably, because he was afraid to offend Elisabeth: by joining the court at Stockholm he

exchanged Elisabeth's patronage, which he acknowledged by his dedication of the *Principles*, with that of Christina. From her side, Elisabeth, who was related to Christina by marriage, deeply distrusted both her royal cousin and Chanut—she felt, rightly for that matter, that France was working on a redistribution of power in Europe that might not be to the advantage of her family in Germany and England.[46] Finally, she was probably hurt by the fact that Descartes shared with Christina not only a draft of the *Passions of the soul*, a book that had grown out of their correspondence, but also some of that correspondence.[47] Descartes may have felt uneasy. Not only does he try to reassure Elisabeth by promising her that before long he will be back; he also never dedicated the (p. 53) *Passions of the soul* to Christina, as one would expect from a courtier, but instead of a dedication inserted an anonymous correspondence on the various ways an experimental philosopher can be supported—in many ways a dialogued rehash of the argument of Part 6 of the *Discourse*.[48] Caught between two royals, that presumably was the best he could do. That being said, it must be underscored how rich and informative Descartes's correspondence with Elisabeth is: for not only does it allow us to follow the genesis of the *Passions of the soul* and the evolution of Descartes's ideas on the passions; without it we would not have his comments on Seneca and Machiavelli.[49]

5.3. Henricus Regius

A completely different case is the correspondence with Regius.[50] Born in 1598 as Hendrik de Roy, Regius (his name as an academic) studied law at Franeker (1616), and medicine at Groningen (1617) and Leiden (1618), before starting on a European tour (1621), which finished in Padua, where he took a degree on 29 March 1623. Back in Utrecht, Regius gave private lessons to students of the university. He was probably aware of Descartes through his neighbour, Henricus Reneri (1593–1639), professor of philosophy at Utrecht university, as well as a friend and correspondent of Descartes.[51] As soon as the *Discourse* was published (1637), he used the few indications in the *Dioptrics* and the *Meteorology* to construct a mechanical physics, which he then taught to his students, apparently with much success.[52] This provided Reneri with an argument to lobby for a second chair in medicine, for which he could also propose a candidate—Regius. As a result, Regius became professor *extra ordinem* in theoretical medicine and botany in the summer of 1638—a position which, less than a year later, was changed into an *ordinaris* professorship.[53]

(p. 54) Regius's first letter to Descartes was written to thank him for his appointment, which he owed, or so he said, to Descartes's philosophy.[54] This first letter was still carried by Reneri, who jealously guarded Descartes's privacy.[55] In fact, Regius and Descartes almost certainly did not meet in person until 1640. Although the first letters were mainly filled with civilities, things took a more serious turn after Reneri's death (20 March 1639).[56] From now on Regius communicated directly with Descartes. In Utrecht, moreover, Reneri's funeral was followed by an academic ceremony during which Antonius Aemilius (1589–1660), the professor of history, pronounced a funeral oration, in which, instead of limiting himself to an edifying report on the life, work, and death of his late colleague, he also presented an elaborate eulogy of Descartes and his philosophy, the friendship with "the one and only Archimedes of our time" being allegedly the most important

feature of Reneri's life (Aemilius 1639). For quite a few professors and citizens this must have been the first time they heard about Descartes. Many were scandalized, not only because much of the speech was devoted to a foreigner, but also because of Aemilius's excessive claims on behalf of Descartes, which must have sounded like a delirious expression of megalomania (Van Buchell 1940: 70). Theologians were particularly disturbed by Descartes's alleged claim that everything could be known with certainty. It cannot be a coincidence that, a few months later, the main professor of theology, Gysbertus Voetius (1589–1676), tabled four disputations "On Atheism" (*De atheismo*), in which he denounced attempts at *pansophia* as an important cause of "indirect" and even "direct" atheism.[57] That much is certain; from then on, many in Utrecht viewed Descartes, and as a result Regius, who made no secret of his admiration for the French philosopher, with suspicion.[58] Descartes, however, interpreted both Regius's professorship and Aemilius's speech as an official endorsement of his philosophy. It led him to send Regius and Aemilius a draft of the *Meditations*, which they were among the very first to see, despite the fact that neither were particularly interested in metaphysics and that both were orthodox Calvinists.[59] Descartes's idea to push the *Meditations* as a proof of his Roman Catholic orthodoxy may as yet not have been formed.[60]

In 1641, Regius started a series of disputations. His first intention had been to publish an "introduction to a new philosophy" (*prodromus novae philosophiae*), building on the "compendium" dictated to his students. Descartes rejected that plan, alleging that (p. 55) Regius's presentation was suitable for disputations only.[61] Undoubtedly, he had also reservations of a different kind. By publishing a book, Regius would cut the ground under his feet. Moreover, he probably foresaw that Regius would leave nobody in doubt about the closeness of their association, so a book would be seen as an authentic presentation of Descartes's physics. In fact, Descartes preferred not to be mentioned by Regius at all.[62] However, the fact that until the end of 1641 Regius submitted almost every word to Descartes before it was printed made it necessary for him to solve new problems and state their differences: "there are many things in your disputations which I must admit I ignore, as well as many others I do know about, which I would explain in a different way".[63] Certainly in its first years the friendship with Regius must have been highly stimulating, Regius being the first with whom he could share and discuss his ideas on medicine and physiology. Indeed, without Regius we would probably have a slightly different Descartes. Apart from the often detailed notes on Regius's disputations, there are the two long letters of January and February 1642, in which Descartes dictates Regius's answer to Voetius's *Diatribe on substantial forms*—a *Response* Regius published in February 1642.[64] Not only is there no text in which Descartes as explicitly discusses the notion of substantial form; it also contains the statement that "the soul is the true substantial form of man"—an important addition to the file on the relation between body and mind.[65]

5.4. Marin Mersenne

The most voluminous correspondence is that with Mersenne. Although Baillet assumes that Mersenne's association with Descartes goes back to La Flèche (where both attended school), this is not very likely given the fact that Descartes came to the school more than

two years after Mersenne, who, moreover, was a day student and entered the school in one of the higher forms (Baillet 1691: I.21). In fact, before starting for the Low Countries, Descartes did not arrange anything with Mersenne about a correspondence, also because it was never Descartes's intention to stay in the Low Countries for the rest of his life. On the contrary, his first plan, matured in 1628, was to work a few weeks, (p. 56) perhaps months, with Isaac Beeckman (1588–1637).[66] Moreover, when, instead of working with Beeckman, he moved to Franeker, more than 200 km north of Dordrecht, he probably did not know how long he would stay there. In any case, initially Descartes's mail was handled by Beeckman.[67] Thus, a letter to Gibieuf could be dated "from Holland", whereas actually Descartes was living in Friesland—by the time Gibieuf would send an answer, Descartes might no longer be in Franeker, and all mail would be directed to Beeckman in Dordrecht (Holland) anyway.[68] Similarly, Ferrier—the artisan with whom Descartes wanted to work in Franeker—was asked to go to Beeckman first and receive instructions and money from him.[69] Actually, Mersenne wrote his first letter to Descartes only several months after the latter's arrival in the United Provinces, after the question he submitted to Descartes had already been discussed in letters to Beeckman himself.[70] The wording of Descartes's first letter to Mersenne does not suggest either that they had been very close, even though it is obvious they had met.[71] Finally, Descartes's second letter shows that Mersenne interpreted Descartes's first letter as a request not to be bothered—a request Mersenne, for that matter, must have ignored implicitly, for in his second letter Descartes already deals with at least six questions.[72]

It was the start of a voluminous correspondence: not only do over 150 letters survive (but there must have been many more), quite a few consist of two, or even more, densely covered large sheets of paper, in which Descartes often deals with two or three letters of Mersenne at the same time. Except when he was not in Paris (which was rare anyway) Mersenne wrote almost every two weeks, sometimes even more often. Among Mersenne's correspondents, on the other hand, Descartes is also one of the principal contributors. Moreover, his letters cover a large spectrum of subjects—indeed, Descartes's letters are an important, albeit indirect, source for what went on in Mersenne's *académie*. On the whole, there is hardly any question Descartes leaves unanswered, although he avoids theological questions if they do not suit him and sometimes protests Mersenne's suggestion is "ridiculous" or "absurd".[73] Through Mersenne, Descartes tried to know, but also to influence, what people in France thought of him and his philosophy. Thus (p. 57) he asks Mersenne whether he is still remembered, and "what [people] say and think he is doing".[74] After the publication of the *Discourse* he hopes Mersenne "will go on to tell [him] frankly what people say of [him], whether it is good or bad"—they know of their relation, so won't accuse him of indiscretion.[75] Mersenne must tell him what the Jesuits are doing with his *Meteorology* in their philosophy classes.[76] And when, in 1641, Descartes's preoccupation with the Jesuits becomes obsessive, it is Mersenne who must forward angry letters and solicit answers (Sortais 1937). Similarly, he provides a brief summary of his theory on the creation of eternal truths only to urge Mersenne "not to keep it a secret […] as long as you do not name me, for I will be happy to know what objections can be made".[77]

By means of his correspondence, Descartes also participates in the discussions of his friend's "academy". Thus, he elaborately criticizes the *Géostatique* of Beaugrand (*c*.1585–1640) more than one year after it is published, ostensibly because otherwise Mersenne's friends might think he has no answer.[78] Similarly, he reacts to Fermat's *De maximis et minimis*, admittedly written in reaction to Descartes's own *Geometry*, in a letter to Mersenne personally, in which he pictures Fermat as someone who, "having suddenly acquired the reputation to know much about algebra […] no longer pays any attention to what he is doing", while adding a second letter, equally addressed to Mersenne, for Fermat himself, in which he declares that he would rather say nothing, "because I would be unable to say anything about it to the advantage of the person who wrote it"—and then goes on criticizing Fermat's theory.[79]

Mersenne becomes particularly useful when Descartes needs empirical evidence for his theories.[80] When, in the summer of 1629, Reneri shares with Descartes an observation of *parhelia* (mock suns) by the Jesuit Christoph Scheiner (*c*.1575–1650), Descartes immediately asks Mersenne for a verification on the manuscript as it circulates in Paris, wanting "to know whether it is the same as the one [he has] seen".[81] In another letter Descartes wants to know "whether there are other and more accurate observations of (p. 58) the movements of sunspots and of the satellites of Jupiter and Saturn"—if so, he wants to see them, or rather "to know whether someone has written about it again, so [he] can buy the books".[82] Probably Mersenne had heard about Scheiner's *Rosa ursina*, a book which was then being printed.[83] Of course, in this period Descartes hardly knew any Dutch specialist apart from Reneri, although he may have spoken on sunspots with Adriaan Metius (1571–1635), professor of mathematics at Franeker, who, like other Dutch astronomers and mathematicians, was engaged in discussions on that subject.[84]

Whereas Descartes is eager to have Mersenne confirm astronomical observations, his interest in experiments is qualified. He is not interested in what he calls "particular experiences"—an expression that stands for what we would call "experiments" (artificial set-ups meant to prove a particular hypothesis or theory) and "irreproducible observations".[85] The first time the subject comes along is when Descartes encourages Mersenne "to go on sending me such [experiences] as you believe deserve to be explained", adding that he is interested only in "what is universal and what everybody can experience". As to "particular experiments, which depend on the good faith of few people", he is not interested and is "determined not to speak of them at all".[86] In this period Descartes is mainly interested in a general theory of nature, which, as he explains in the *Discourse*, is best confirmed by "experiences" which "present themselves spontaneously to our senses" rather than "those which are more unusual and highly contrived".[87] Experiments, in the specific sense of the word, often require the help of others, whereas the philosopher "could not usefully employ other hands than his own".[88] Finally, reports of "experiences" of others cannot always be trusted because "they are for the most part bound up with so many details or superfluous ingredients that it would be very hard […] to make out the truth in them". Indeed, most turn out "to be so badly explained or indeed so mistaken—because those who performed them were eager to have them appear to conform with their princi-

ples—that it would simply not be worthwhile […] to spend the time required to pick out those which might be useful".[89]

Although, therefore, there are many theoretical reasons why Descartes should not be interested in observations and experiments realized by others, much of his correspondence with Mersenne is devoted precisely to those. As it is, there were many practical reasons that overruled his reservations. First of all, Descartes eventually needed (p. 59) experiments badly, as he admits in the *Discourse*: "the further we advance in our knowledge, the more necessary they become".[90] Whereas the first part of physics is essentially an individual project, its second part, which also comprises physiology and chemistry, seeks to explain particular effects, and requires a great many "particular experiences".[91] However, these can be expensive; they often require technical assistance; and in the places where Descartes lived they cannot always easily be realized, whereas Mersenne was usually well informed about observations and experiments performed in Paris and elsewhere, and himself worked with engineers like Pierre Petit (1594–1677).[92] Moreover, Descartes trusted him and felt free to give him detailed instructions.[93] On the whole, therefore, Mersenne was extremely useful, especially in this respect.

That being said, there was also, at least occasionally, some irritation, certainly on behalf of Descartes. Thus, for example, Descartes is seriously annoyed when instead of doing what is needed to obtain a *privilège* (printing licence) for the *Discourse*, which in itself was complicated enough, Mersenne tries to have one for whatever Descartes still was to publish—a bureaucratic challenge, which caused the publication of the *Discourse* to be delayed for several months.[94] Similarly, despite the fact that he heard about the "barometric experiments" of Torricelli almost from the beginning, and even witnessed a replication of the experiment in Florence in December 1644, Mersenne failed to inform Descartes, who first heard about it in June and September 1647 when he was in Paris.[95] Like others, presumably, who corresponded with Mersenne, Descartes had to take a certain amount of confusion and miscommunication in their stride. The way in which Mersenne organized a debate or contest by correspondence, submitting a problem to various correspondents, playing them off against each other, and sending back and forth letters and documents, led to much confusion and occasionally upset Descartes's relations with other people. Thus, it was a thoughtless and indiscrete remark of Mersenne that precipitated Descartes's quarrel with Beeckman, although the violence of (p. 60) Descartes's reaction suggests that some irritation had already been building up.[96] It is also clear that Mersenne gave permission to show the *Dioptrique* to Fermat, and perhaps even that he himself solicited Fermat's reaction—afterwards he told Descartes different stories on who did what, eventually, as it seems, putting all the blame on Beaugrand.[97]

6. Conclusion

Descartes's correspondence is an integral part of his work. Not that by reading his letters we learn much about his life; indeed, in that respect the correspondence may even be found a bit disappointing, although, as we have shown, much can be learned about

Descartes's personality, his self-image, his relations to others, and his strategies as an author. Still, it is through the letters that we sometimes have a glimpse of Descartes's day-to-day business. Thus we see Descartes dissecting rabbits and eels, visiting the Leiden anatomical theatre, being involved in the treatment of a young girl suffering from rickets, soliciting an interview with the stadholder for two Haarlem priests, and pleading the case of a murder suspect.[98] Finally, there are several theories and doctrines which can be known only from the correspondence, or which, on the basis of the correspondence, can be qualified or rendered more precise. Thus, for example, the theory of the creation of eternal truths is primarily known through the correspondence; indeed, despite Descartes's promises that it will be in his "Physics", the name for what came to be known as *Le monde*, there is nothing like it in that work, even though, obviously, there is nothing in that work either which contradicts it.[99] A long letter on love, written for Queen Christina, certainly adds a few elements to what can be known on the subject from the *Passions of the soul*.[100] The only presentation of Descartes's ideas on language (p. 61) are found in a letter to Mersenne.[101] His political ideas can be reconstructed only from what he says about Machiavelli and Hobbes in letters to Elisabeth and an unknown correspondent.[102] His explanation of fevers is found only in a letter to the Marquess of Newcastle.[103] Without the correspondence, Descartes's mathematics would be limited to the *Geometry*.[104] For a thorough discussion of his explanation of the Eucharist one must turn to the correspondence with Mesland.[105]

References

Adam, Charles (1933), "Correspondance de Descartes: nouveau classement", *Revue philosophique de la France et de l'Étranger* 115: 373–401.

Aemilius, Antonius (1639), *Oratio in obitum Cl. V. Henrici Renerii*. Utrecht: Roman. Reprinted in Aemilius, *Orationes quarum pleraeque tractant argumentum politicum*. Utrecht: Van Zyll and Van Ackersdyck, 1651, 105–24.

Agostini, Sigrid (2018), *Claude Clerselier: la correspondance et le contexte intellectuel (1646–1681): A l'origine d'un cartésianisme après Descartes*. Leuven: Brepols.

Alexandrescu, Vlad, and Grigore Vida (2015), "Sur les lettres CDLXXVI *ter* et *quater* d'AT (Clerselier, T. II, XXIII et XXIV)", *Bulletin cartésien XLIV, Archives de philosophie* 78: 174–82.

Armogathe, Jean-Robert (1992), "Le groupe de Mersenne et la vie académique parisienne", *XVIIe Siècle* 44: 131–9.

Armogathe, Jean-Robert (1999), "La *Correspondance* de Descartes comme laboratoire intellectuel", in Jean-Robert Armogathe, Giulia Belgioioso, and Carlo Vinti (eds.), *La biografia intellettuale di René Descartes attraverso la* Correspondance: *Atti del Convegno* Descartes e l'"Europe savante", *Perugia, 7–10 ottobre 1996*. Naples: Vivarium, 5–22.

Baillet, Adrien (1691), *La vie de Monsieur Des-Cartes*, 2 vols. Paris: Horthemels.

Beeckman, Isaac (1939–53), *Journal tenu par Isaac Beeckman de 1604 à 1634*, ed. Cornelis de Waard, 4 vols. The Hague: Nijhoff.

Berkvens-Stevelinck, Christiane, Hans Bots and Jens Häseler (2005), *Les grands intermédiaires culturels de la République des Lettres: études de réseaux de correspondances du XVIe au XVIIIe siècles*. Paris: Champion.

Bos, Erik-Jan (2002), "The Correspondence between Descartes and Henricus Regius", ed. Erik-Jan Bos. PhD diss., Zeno Research Institute, Utrecht University, Utrecht.

Bos, Erik-Jan (2006), "Descartes and Comenius: New Insights—Old Errors", *Comenius–Jahrbuch* 11–12 (2003–4): 83–95.

Bos, Erik-Jan (2010), "Two Unpublished Letters of René Descartes: On the Printing of the *Meditations* and the Groningen Affair", *Archiv für Geschichte der Philosophie* 92: 290–302.

Bos, Erik-Jan, and Theo Verbeek (2013), "Conceiving the Invisible: The Role of Observation and Experiment in Descartes's Correspondence, 1630–1650", in Dirk Van Miert (ed.), (p. 62) *Communicating Observations in Early Modern Letters (1500–1675)*. London: Warburg Institute, 163–179.

Bos, Erik-Jan, and Corinna Vermeulen (2002), "An Unknown Letter of Descartes to Joachim de Wicquefort", *Studia Leibnitiana* 34: 100–9.

Breger, Herbert (2002), "Ein wiedergefundenes Autograph von Descartes", *Studia Leibnitiana* 34: 110–16.

Brown, Harcourt (1934), *Scientific Organizations in Seventeenth-Century France (1620–1680)*. Baltimore: Williams and Wilkins [reissue, New York: Russell and Russell, 1967].

Buning, Robin (2013), "Henricus Reneri (1593–1639): Descartes' Quartermaster in Aristotelian Territory". PhD dissertation, Zeno Research Institute, Utrecht University, Utrecht.

De Boer, Josephine (1938), "Men's Literary Circles in Paris 1610–1660", *Publications of the Modern Language Association* 53: 730–80.

De Waard, Cornelis (1925), "Les objections de P. Petit contre le Discours et les Essais de Descartes", *Revue de métaphysique et de morale* 32: 53–89.

Dear, Peter (1988), *Mersenne and the Learning of the Schools*. Ithaca, NY: Cornell University Press.

Delatour, Jérôme (2005), "Les frères Dupuy et leurs correspondances", in Christiane Berkvens-Stevelinck, Hans Bots, and Jens Häseler (eds.), *Les grands intermédiaires culturels de la République des Lettres: études de réseaux de correspondances du XVIe au XVIIIe siècles*. Paris: Champion, (note 1), 61–101.

Descartes, René (1657–67), *Lettres de M^r Descartes*, ed. Claude Clerselier, 3 vols. Paris: Ch. Angot/H. le Gras.

Descartes, René (1897–1913), *Œuvres de Descartes*, ed. Charles Adam and Paul Tannery, 12 vols. Paris: Cerf.

Descartes, René (1926), *Correspondence of Descartes and Constantyn Huygens, 1635–1647*, ed. Leon Roth. Oxford: Clarendon.

Descartes, René (1936–63), *Correspondance*, ed. Charles Adam and Gérard Milhaud, 8 vols. Paris: Alcan/Presses Universitaires de France.

Descartes, René (1964–71), *Œuvres de Descartes*, 2nd edition, ed. Ch. Adam, P. Tannery, B. Rochot, P. Costabel, and A. Beaulieu, 11 vols. Paris: Vrin.

Descartes, René (1996), *Verantwoordingh […] aen d'achtbare overigheit van Uitrecht*, ed. Erik-Jan Bos. Amsterdam: Amsterdam University Press.

Descartes, René (2008), *Lettres: Esemplare annotato dell Institut de France (edizione di Claude Clerselier, 1666–1667)*, ed. Jean-Robert Armogathe and Giulia Belgioioso, 6 vols. Lecce: Conte editore.

Descartes, René (2009), *Tutte le lettere (1619–1650): Testo francese, latino e olandese*, ed. and trans. Giulia Belgioioso et al., 2nd edition. Milan: Bompiani.

Descartes, René (2012–16), *Descartes' Correspondence* [Japanese translation], ed. and trans. Hiroaki Yamada et al., 8 vols. Tokyo: Chisen-shokan.

Descartes, René (2014–present), *Corespondenţa completă*, ed. and trans. Vlad Alexandrescu, 3 vols. Bucharest: Polirom.

Descartes, René (2015), *Der Briefwechsel mit Elisabeth von der Pfalz*, ed. and trans. Isabelle Wienand, Olivier Ribordy, and Benno Wirz. Hamburg: Felix Meiner Verlag.

Descartes, René, and Martinus Schoock (1988), *La querelle d'Utrecht*, ed. Theo Verbeek. Paris: Impressions nouvelles.

Dibon, Paul (1990), "Clerselier, éditeur de la correspondance de Descartes", in Paul Dibon, *Regards sur la Hollande du Siècle d'or*. Naples: Vivarium, 495–522.

(p. 63) Falk, Henri (1906), *Les privilèges de librairie sous l'Ancien Régime*. Paris: Rousseau. Reprint Geneva: Slatkine, 1970.

Gadoffre, Gilbert (1987), "La chronologie des six parties", in *Le Discours et sa méthode*, ed. Nicolas Grimaldi and Jean-Luc Marion. Paris: Presses Universitaires de France, 19–40.

Galilei, Galileo, and Christoph Scheiner (2010), *On Sunspots*, trans. Eileen Reeves and Albert van Helden. Chicago: University of Chicago Press.

Hooft, Pieter Cornelisz (1855–7), *Brieven*, ed. Johannes van Vloten, 4 vols. Leiden: Brill.

Huygens, Constantijn (1885), *Dagboek*, ed. J. H. W. Unger. Amsterdam: Binger.

Huygens, Constantijn (1892–9), *Gedichten*, ed. J. A. Worp, 9 vols. Groningen: Wolters.

Huygens, Constantijn (1911–17), *De briefwisseling van Constantijn Huygens*, ed. J. A. Worp, 6 vols. The Hague: Rijks geschiedkundige publicatiën.

Huygens, Constantijn (2003), *Mijn leven verteld aan mijn kinderen*, ed. and trans. Frans Blom, 2 vols. Amsterdam: Prometheus/Bakker.

Jurgens, Madeleine, and Jean Mesnard (1979), "Quelques pièces exceptionnelles découvertes au minutier central des notaires de Paris (1600–1650)", *Revue d'histoire littéraire de la France* 79: 739–54.

Kambouchner, Denis (2013), *Le style de Descartes*. Paris: Éditions Manucius.

Kronick, David A. (1976), *A History of Scientific and Technical Periodicals: The Origins and Development of the Scientific and Technical Press 1665–1790*, 2nd edition. Metuchen, NJ: Scarecrow.

Kronick, David A. (1991), *Scientific and Technical Periodicals of the Seventeenth and Eighteenth Centuries: A Guide*. Metuchen, NJ and London: Scarecrow.

Lenoble, Robert (1943), *Mersenne ou la naissance du mécanisme*. Paris: Vrin.

Mersenne, Marin (1932–88), *La correspondance du P. Marin Mersenne*, ed. Cornelis de Waard, Bernard Rochot, and Armand Beaulieu, 17 vols. Paris: Beauchesne/Presses Universitaires de France/Centre Nationale de la Recherche Scientifique. [Abbreviated in the notes as 'CM'.]

Mori, Gianluca (2017), "Descartes incognito: la 'préface' des *Passions de l'âme*", *Dix-septième siècle* 277: 685–700.

Oldenburg, Henry (1965–86), *The Correspondence of Henry Oldenburg*, ed. Alfred Rupert Hall and Marie Boas Hall, 13 vols. Madison, WI: University of Wisconsin Press.

O'Neill, Lindsay (2015), *The Opened Letter: Networking in the Early Modern British World*. Philadelphia: University of Pennsylvania Press.

Pastine, Dino (1972), "Caramuel contro Descartes: Obiezioni inedite alle Meditazioni", *Rivista critica di storia della filosofia* 27: 177–221.

Raymond, Joad, and Noah Moxham (2016), *News Networks in Early Modern Europe*. Leiden: Brill.

Regius, Henricus (1642), *Responsio sive Notae in Appendicem […] Voetii*. Utrecht: Van Doorn.

Rochot, Bernard (1966), "Le Père Mersenne et les relations intellectuelles dans l'Europe du XVIIe siècle", *Cahiers d'histoire mondiale* 10: 55–73.

Roux, Sophie (2004), "Cartesian mechanics", in Carla Rita Palmerino and Hans Thijssen (eds.), *The Reception of the Galilean Science of Motion in Seventeenth-Century Europe*. Dordrecht: Kluwer, 25–66.

Scheiner, Christoph (1626–30), *Rosa ursina sive sol ex admirando facularum et macularum phaenomeno varius necnon […] mobilis ostensus*. Bracciano: Phaeus.

[Schoock, Martinus] (1643), *Admiranda methodus novae philosophiae Renati Des Cartes*. Utrecht: Van Waesberghe.

Sortais, Gaston (1937), "Descartes et la Compagnie de Jésus: menaces et avances, 1640–1646", *Estudios* 57: 441–68.

(p. 64) Van Buchel, Aernout (1940), *Notae Quotidianae*, ed. J. W. C. van Campen. Utrecht: Kemink.

Van de Ven, Jeroen, and Erik-Jan Bos (2004), "*Se nihil daturum*—Descartes's Unpublished Judgement of Comenius's *Pansophiae Prodromus* (1639)", *British Journal for the History of Philosophy* 12: 369–86.

Van Miert, Dirk, ed. (2013), *Communicating Observations in Early Modern Letters (1500–1675)*. London: Warburg Institute.

Van Otegem, Matthijs (2002), "A Bibliography of the Works of Descartes", 2 vols. PhD diss., Zeno Research Institute, Utrecht University, Utrecht.

Verbeek, Theo (1992), *Descartes and the Dutch: Early Reactions to Cartesian Philosophy, 1637–1650*. Carbondale/Edwardsville: Southern Illinois University Press.

Verbeek, Theo (1993), "Le contexte historique des *Notae in programma quoddam*", in Theo Verbeek (ed.), *Descartes et Regius: Autour de l'Explication de l'esprit humain*. Amsterdam: Rodopi, 1–33.

Verbeek, Theo (1994), "Regius' *Fundamenta physices*", *Journal of the History of Ideas* 55: 533–51.

Verbeek, Theo (2003), "A Philosopher's Life", in Thomas Lennon (ed.), *Cartesian Views: Papers Presented to Richard A. Watson*. Leiden: Brill, 53–69.

Verbeek, Theo, Erik-Jan Bos, and Jeroen van de Ven (2003), *The Correspondence of René Descartes: 1643*. Utrecht: Zeno Research Institute.

Vermeulen, Corinna (2015), "*La langue des doctes*: Style and Strategy in Descartes's Latin Works", *Humanistica Lovaniensia* 64: 367–79.

Voetius, Gysbertus (1648), *Selectarum disputationum theologicarum Pars prima*. Utrecht: Van Waesberghe.

Notes:

([1]) Cf. Van Miert 2013; Raymond and Moxham 2016. For earlier, usually less scholarly, journals see Kronick 1976: ch. 3; Kronick 1991. On letters and correspondences also see Berkvens-Stevelinck, Bots and Häseler 2005; O’Neill 2015 deals with the latter half of the seventeenth century, but contains much that is relevant to the first half as well.

([2]) Brown 1934; De Boer 1938: 730–80.

([3]) After the foundation of the *Académie française* (1635), a governmental institution, they came to be referred to as the *Cabinet Dupuy*, undoubtedly to emphasize their non-official status.

([4]) Delatour 2005: 61–101.

([5]) Rochot 1966; Armogathe 1992. Cf. Lenoble 1943; Dear 1988. The edition of the correspondence: Mersenne 1932–88.

([6]) Oldenburg 1965–86. Leibniz’ correspondence is being published as part of the general edition of his works (*Sämtliche Schriften und Briefe*, herausgegeben von der Preussischen Akademie der Wissenschaften, the first volume of which was published in 1923). For a digital edition, see https://rep.adw-goe.de/handle/11858/00-001S-0000-0006-AB16-C.

([7]) Huygens was Lord of Zuilichem after buying the fief in 1630. Descartes sometimes gives Huygens the title of *chevalier* in recognition of a knighthood awarded by James I in 1622.

([8]) An image of the first page of a letter to Huygens (10 July 1643), kept at the library of Uppsala University (Waller Collection), is found at http://waller.ub.uu.se/images/Waller_Ms_fr2/02706/f_001a.jpg. Several letters to Mersenne are digitally available via the NuBis website of the Bibliothèque interuniversitaire de la Sorbonne: https://nubis.univ-paris1.fr.

([9]) On Descartes’s literary style, see Kambouchner 2013; Vermeulen 2015.

([10]) See Bos 2002; Alexandrescu and Vida 2015.

([11]) On Clerselier’s editorial efforts, see Dibon 1990, Bos 2002: xxiv–xxxviii, and Agostini 2018.

([12]) Descartes 2008 offers a reproduction of the *Exemplaire de l’Insitut*. See also Bos 2002: xxxviii–xl, and Descartes 2009: xiv–xviii.

([13]) Van de Ven and Bos 2004; Bos 2010. On Descartes and Comenius, see Bos 2006. For the other letters discovered between 1671 and 2002, or not published in AT, see Pastine 1972, Bos and Vermeulen 2002, and Breger 2002.

([14]) Armogathe 1999.

([15]) Editors in chief of this edition are Erik-Jan Bos, Theo Verbeek, and Roger Ariew. Collaborating in the annotation are Delphine Bellis, Sébastien Maronne, Carla Rita Palmerino, and Rudolf Rasch. The first volume covering the years 1619–32 is to appear with Oxford University Press in 2019.

([16]) Huygens to Golius, 7 April 1632, in Huygens 1911–17: I.34.

([17]) Golius to Huygens, 16 April 1632, Huygens 1911–17: I.349.

([18]) Descartes to De Wilhem, 23 May 1632, AT I.253–4. De Wilhem, who married Huygens’s youngest sister Constantia in 1633, immediately forwarded this letter to Huygens; De Wilhem to Huygens, 4 June 1632, Huygens 1911–17: I.353 (summary—for the full text, see Hooft (1855–7): III, 478–9). On the relation De Wilhem-Reneri, see Buning 2013.

([19]) *Discours de la méthode* VI, AT VI.73/CSM I.148.

([20]) Descartes to Mersenne, 8 October 1629, AT I.23–4/CSMK 6; 18 December 1629, AT I. 85–6/CSMK 14.

([21]) Descartes moved to Deventer at the end of May 1632 (Descartes to De Wilhem, 23 May 1632, AT I.253) and is still in Deventer in February 1634 (Descartes to Marguerite de La Porte, 24 February 1634, Jurgens and Mesnard 1979: 744–8 (not in AT).

([22]) Descartes’s first letter to Huygens was written two weeks after the Amsterdam meeting (Descartes to Huygens, 15/25 April 1635, AT I.585–6)—Huygens visited Amsterdam with his wife from 29 March to 6 April 1635 (Huygens 1885: 26). For the decision not to publish anything, see Descartes to Mersenne, [end of November 1633], AT I.270–2/CSMK 40–1; [February 1634], AT I.281–2/CSMK 41–2; [April 1634], AT I.285–6/CSMK III.42–3; *Discours* v, AT VI.41/CSM I.131–2; vi, AT VI.60/CSM I.141–2.

([23]) For the lens grinder (*tourneur*), see Huygens to Descartes, 28 October 1635, AT I. 590; Descartes to Huygens, 1 November 1635, AT I.592/CSMK 50. A design of the machine was published in *Dioptrique* X, AT VI.216–24; Manuscripts: Descartes to Huygens, 28 March 1636, AT I.601–3; Huygens to Descartes, 31 March 1636, AT I.603–4; Descartes to Huygens, [31 March 1636], AT I.605. Publisher: Huygens to Descartes, 28 October 1635, AT I.589. For the diplomatic mail: Huygens to Descartes, 5 January 1637, AT I.616–7; Huygens to [Euskercke], 5 January 1637, AT I.347/CM VI.165–6; Huygens to Descartes, 24 March 1637, AT I.625–6. Proof reading: Descartes to Huygens, 1 January 1637, AT I. 615; Huygens to Descartes, 5 January 1637, AT I.617–18; Descartes to Huygens, [3 March 1637], AT I.623–4; 29 March 1637, AT I.629. The “errata” of the first edition had undoubt-

edly been signalled by Huygens (cf. Van Otegem 2002: I.8–9—also on the printing history).

([24]) In the original plan, Part 6 was the introduction to the *Dioptrique* and the *Météores*—Parts 1–5 of the *Discours*, as well as the *Géométrie*, were added later (Gadoffre 1987).

([25]) Huygens to Descartes, 18 September 1637, AT I.642–3; Descartes to Huygens, 5 October 1637, AT I.644–5/CSMK 66; Huygens to Descartes, 23 November 1637, AT I.646–8; Descartes to Huygens, 4 December 1637, AT I.648–50/CSMK 75–6. The *Explication des Engins* (AT I.435–47/CSMK 66–73) was first published in an English translation as part of a volume of *Discourses of the mechanicks*, two vols., Thomas Salusbury (ed.), London: Leybourn, 1661–5. See Van Otegem 2002: II, 553–72.

([26]) For the relation between physics and mechanics, see Roux 2004.

([27]) Huygens to Descartes, 7 July 1645, AT IV.778–80; Descartes to Huygens, 4 August 1645, AT IV.780–2.

([28]) Descartes is mentioned only once when Huygens refers to the time before Descartes had "cast a new light", *De vita propria sermones inter liberos* (1678), published in Huygens 1892–9: VIII.184; Huygens 2003: I.72–3.

([29]) Frederick's mother was Louise Juliana of Nassau (1576–1644), a daughter of William of Orange (1533–84) and Charlotte of Bourbon (*c*.1546–82), and as a result a half-sister of Maurice of Nassau (1567–1625) and Frederick-Henry of Orange (1584–1647).

([30]) Elisabeth's eldest brother Henry (1614–29) was drowned in a ship's accident; her brother Edward (1625–63) converted to Catholicism, according to Elisabeth for frivolous motives; her sister Louise Hollandine (1622–1709), a gifted painter, also converted to Catholicism and became a nun; her brother Philip (1627–50) killed a French officer for boasting about an affair with Louise; her uncle, Charles I of England, was decapitated. It is only after the reinstatement of her brother Charles-Louis (1617–80) in the Lower Palatinate (in 1649) that things looked a bit less gloomy.

([31]) Descartes to Pollot, 6 October 1642, AT III.577–8/CSMK 214–15; cf. Descartes to Elisabeth, [November 1643], AT IV.38; 18 May 1645, AT IV.200; [May or June 1645], AT IV. 221/CSMK 251. After the death of his father Alphonse Pollot (or Palotti), an Italian protestant, fought in the Dutch army. He lost an arm during the Siege of's-Hertogenbosch (1629), was taken captive in the Battle of Kallo (1638), became an equerry of the stadholder and, after the latter's death (1647), chamberlain of the princess dowager, Amalia of Solms (1602–75).

([32]) Sorbière to Gassendi, 10 May 1644, in: Gassendi, *Opera* VI, 470. Samson Johnson (also Jonsson or Jonson) was a friend of Hugo Grotius (1583–1645), in whose name he supervised the English edition of his book on Socinianism (*Defensio fidei catholicae adversus*

Faustum Socinum, 1636). On Grotius's recommendation, Archbishop Laud (1573–1645) sent Johnson to Holland to be preacher at the court of Elisabeth Stuart.

([33]) Elisabeth to Descartes, 6 May [1643], AT III.660. On Regius, see Section 5.3.

([34]) Sorbière to Thomas Martel, 15 June 1643 (quoted Descartes 1936–63: V.317); cf. Elisabeth to Descartes, 10 June 1643, AT III.683–5.

([35]) Descartes to Elisabeth, [21 May 1643], AT III.664/CSMK 217; cf. Descartes to Pollot, 6 October 1642, AT III.578/CSMK 214–15.

([36]) Elisabeth to Descartes, 6 May 1643, AT III.661.

([37]) Descartes to Elisabeth, [21 May 1643], AT III.665/CSMK 218.

([38]) Descartes to Elisabeth, [28 June 1643], AT III.691–2/CSMK 227.

([39]) "Or again, the mind, even though it is in fact a substance, can nonetheless be said to be a quality of the body to which it is joined." *VI^{ae} Objectiones et Responsiones*, AT VII. 442/CSM II.297–8.

([40]) Elisabeth to Descartes, 1 August [1644], AT IV.131; cf. Descartes to Elisabeth, [August 1644], AT IV.136.

([41]) For Seneca, see Descartes to Elisabeth 21 July 1645, AT IV.253/CSMK 256; 4 August 1645, AT IV.263–8/CSMK 256–9; 18 August 1645, AT IV.271–7/CSMK 259–62. Eventually Elisabeth complained that Seneca's book did not make her any wiser (Elisabeth to Descartes, 16 August [1645], AT IV.269), after which Descartes starts presenting his theories without reference to others; Descartes to Elisabeth, 18 August 1645, AT IV.275–7/CSMK 261–2; 1 September 1645, AT IV.281–7/CSMK 262–5; 15 September 1645, AT IV. 290–6/CSMK 265–7.

([42]) Elisabeth to Descartes, 13 September 1645, AT IV.289–90; Descartes to Elisabeth 15 September 1645, AT IV.296/CSMK 267; 6 October 1645, AT IV.310/CSMK 270.

([43]) Descartes to Elisabeth, 6 October 1645, AT IV.313/CSMK 272; 3 November 1645, AT IV.332/CSMK 277. For the notion of "enumeration", see *Regulae* vii, AT X.387–92/CSM I. 25–8; cf. *Discours* ii, AT VI.19/CSM I.120. For another example of enumeration as a precondition for explanation, see *Principia* iv, art. 145.

([44]) Elisabeth to Descartes, 25 April [1646], AT IV.404–6. It is possible that the draft also covered part of what is now Part 1 of the *Passions*; cf. Descartes to Elisabeth, 6 October 1645, AT IV.310/CSMK 270); [May 1646], AT IV.407–9/CSMK 285–6.

([45]) Elisabeth to Descartes, [August 1646], AT IV.448–9. The aunt was Elisabeth Charlotte of Brandenburg (1597–1660), a sister of Elisabeth's father. The reason of Elisabeth's "exile" (that is how she felt it) was the incident with her brother Philip (see note 30). She never returned to The Hague.

([46]) See, particularly, Elisabeth to Descartes, 23 August [1648], AT V.225–6. The late husband of Elisabeth’s aunt, George William of Brandenburg (1595–1640), was a brother of Christina’s mother, Maria Eleonora (1599–1659).

([47]) Descartes to Christina, 20 November 1647, AT V.81–6/CSMK 324–6; to Chanut, 20 November 1647, AT V.87/CSMK 327; to Elisabeth, 20 November 1647, AT V.89–92.

([48]) Van Otegem (2002: I.340) suggests that Descartes’s anonymous correspondent is Henri Desmarets (1629–1725), the Latin translator of the *Passions de l’âme* (*Passiones animae*, Amsterdam: Elsevier, 1650); Mori (2017), that all letters were written by Descartes.

([49]) For a discussion of Machiavelli (referred to as “the teacher of princes”), see Descartes to Elisabeth, [September 1646], AT IV.486–92/CSMK 292–5; Elisabeth to Descartes, 10 October [1646], AT IV.519–22; Descartes to Elisabeth, [November 1646], AT IV.531; Elisabeth to Descartes, 29 November [1646], AT IV.580.

([50]) On all problems concerning Descartes’s correspondence with Regius, see Bos 2002 (critical edition and revised chronology). On Regius and Descartes, see also Chapter 27 in this Handbook.

([51]) On Reneri, see Buning 2013. Reneri as well as Regius had a house in Utrecht *Munstertrans* (now *Trans*).

([52]) Descartes to Mersenne, 23 August 1638, AT II.334; cf. *Letter to Dinet*, AT VII.582–3; *Lettre apologétique aux magistrats d’Utrecht*, AT VIIIB.208. Of this “compendium” there exists no printed version. Regius probably dictated it to his students.

([53]) The difference between an “ordinary” professor and an “extraordinary” professor is that the second had no voting rights in the “senate”, that is, the assembly of professors. Usually he was also paid less than an ordinary professor. There was already an ordinary professor in medicine, Guilielmus Stratenus (1593–1681), who, however, limited himself to practical medicine. In 1641 he became court physician of the stadholder.

([54]) Regius to Descartes, 8/18 August 1638, AT II.305–6/Bos 2002: 3–6.

([55]) See Schoock 1643: “praefatio” (Descartes and Schoock 1988: 157–8).

([56]) Cf. Descartes to Pollot, 6 May 1639, AT II.545–6; to Mersenne, 27 August 1639, AT II. 570/CSMK III.137.

([57]) They were held on 22 June, 29 June, 6 July, and 13 July 1639. Copies of the original edition are extremely rare. A revised text was published in Voetius 1648: 114–226. “Direct atheism” is the explicit claim that there is no God; “indirect atheism” any idea, theory, or behaviour which entails that claim, or facilitates it. Admittedly “pansophia” is also one of the key notions of Comenianism, with which Reneri, who was part of the Hartlib network, also sympathized (cf. Bos 2006; Buning 2013).

([58]) *Letter to Dinet*, AT VII.583; *Lettre apologétique aux magistrats d’Utrecht*, AT VIIIB. 203–4 (Descartes 1996: 76–7).

([59]) Descartes to Regius, [June 1640], AT III.63–5/Bos 2002: 51–2/CSMK 146–8.

([60]) Descartes to Mersenne, 13 November 1639, AT II.622.

([61]) Descartes to Regius, [April 1641], AT IV.239–40/Bos 2002: 57. For the date (different from AT’s) see Verbeek 1993: 6–7; Verbeek 1994; Bos 2002: 58–9.

([62]) Descartes to Regius, [24 May 1640], AT III.66, 68/Bos 2002: 41, 43.

([63]) Descartes to Regius, [November 1641], AT III.443/Bos 2002: 87; cf. Descartes to Regius, [early May 1641], AT III.371/CSMK 181/Bos 2002: 64.

([64]) Regius 1642; Descartes to Regius, [late January 1642], AT III.491–502; 509/Bos 2002: 98–107; [3 or 4 February 1642], AT III.509–10; 503–9/Bos 2002: 113–8 (for the reasons to split the letter, see Bos 2002). For all details, see Descartes and Schoock 1988; Verbeek 1992.

([65]) Regius 1642: 25; Descartes to Regius, [3 or 4 February 1642], AT III.412/Bos 2002: 115. So far Descartes had spoken only a few times of the “substantiality” of the union of body and mind; cf. *IV^{ae} Objectiones*, AT VII.219, 228/CSM II.155, 160; *Letter to Dinet*, AT VII.585. In most other cases he limits himself to the statement that the union was close and intimate.

([66]) Beeckman 1939–53: III.94–5; cf. Verbeek 2003.

([67]) Beeckman to Mersenne, [June 1629], CM II:233_4.

([68]) Descartes to Gibieuf, 18 July 1629, AT I.17. Until Louis Bonaparte (1778–1846), king of the short-lived “royaume de Hollande” (1806–10), the name ‘Holland’ never referred to the territory of present-day Netherlands, but only to the former County of Holland, that is, the most western of the seven united provinces.

([69]) Descartes to Ferrier, 18 June 1629, AT I.14–15.

([70]) Mersenne to Rivet, 28 February 1629, CM II.205–6; Beeckman to Mersenne, [June 1629], CM II.233–4. Descartes’s first letter is that of [early September 1629] (AT I.19–20; the second half of the letter, as published in AT, was probably addressed to someone else). Mersenne’s letter, to which this is a reply, is lost.

([71]) Descartes is explicitly mentioned (on optics) in a letter of Cornier to Mersenne of 22 March 1626 (CM I.429, 430). Mersenne was also in contact with Claude Mydorge (1585–1647), with whom Descartes worked on optical problems before leaving Paris ([Mydorge] to Mersenne, [February–March 1626], CM I.404–14). At the end of 1628 or the beginning of 1629, Beeckman refers to contacts between Descartes and “a monk he knows” (undoubtedly Mersenne) on experiments with strings (Beeckman 1939–53: III.98).

([72]) Descartes to Mersenne, 8 October 1629, AT I.22–8/CSMK 6–7.

([73]) Descartes to Mersenne, [15 January 1630], AT I.109, 112; [25 February 1630], AT I. 116; [end of February 1634], AT I.286; 27 August 1639, AT II.573; 19 January 1640, AT III.11; 30 September 1640, AT III.192–3, etc.

([74]) Descartes to Mersenne, [18 March 1630], AT I.135.

([75]) Descartes to Mersenne, [18 January 1638], AT I.485.

([76]) Descartes to Mersenne, [27 July 1638], AT II.267–8/CSMK 118. *Philosophie* here means not the discipline of philosophy (as CSMK's translation suggests), but the three highest forms of a Jesuit college, devoted to the teaching of philosophy.

([77]) Descartes to Mersenne, 15 April 1630, AT I.146/CSMK 22–3. The discussion is continued in the letters of [6 May 1630] (AT I.149–50/CSMK 24–5) and [27 May 1630 [?]] (AT I. 151–3/CSMK 25–6).

([78]) Descartes to Mersenne, [22 June 1637?], AT I.391; 29 June 1638, AT II.182–90; [13 July 1638], AT II.247. This last letter accompanied Descartes's critique (AT II.222–45/CSMK 111–18). As to Descartes's personal judgement on Beaugrand, see Descartes to Mersenne, 11 October 1638, AT II.395–6; 30 July 1640, AT III.131; 31 December 1640, AT III.277; [September 1641], AT III.437.

([79]) See the two letters to Mersenne of [18 January 1638], AT I.483–5; 486–93.

([80]) For the following see also Bos and Verbeek 2013.

([81]) Descartes to Mersenne, [8 October 1629], AT I.23/CSMK 6; cf. Descartes to Mersenne, [13 November 1629], AT I.70. This being obviously Descartes's second letter to Mersenne (see the beginning, AT I.22/CSMK 6), he can have asked this only in a part of his first letter that does not survive. Reneri obtained Scheiner's description from Gassendi who in the summer of 1629 made a trip to the United Provinces. He left it to Reneri to publish his explanation (*Phaenomenon rarum et illustre Romae observatum*, Amsterdam: Hessel Geraerdsz, 1629). Descartes's own explanation (*Météores* x, AT VI.361–2) was the starting point of his *Meteorology*.

([82]) Descartes to Mersenne, 18 December 1629, AT I.102–3; cf. Descartes to Mersenne, [beginning of February 1634], AT I.282. The ring on Saturn was still interpreted as consisting of satellites.

([83]) Scheiner 1626–30. Descartes cites this book in *Principia* iii, art. 35. On the controversy over sunspots, see Galilei and Scheiner 2010.

([84]) See Galilei and Scheiner 2010: 34. Descartes credited Metius's brother Jacob (1571–1628) with the invention of the telescope (*Dioptrique* I, AT VI.82).

([85]) Not only in Descartes's days, but also now, the French word *expérience* means 'experience' in the ordinary sense of that word, as well as 'experiment' in the specific sense of that word.

([86]) Descartes to Mersenne, 18 December 1629, AT I.84–5/CSMK 14.

([87]) *Discours* VI, AT VI.63/CSM I.143. In his translation, Cottingham avoids the terms 'experiment' and 'experience' and replaces them by 'observation' (see note 85). We do not follow him there.

([88]) *Discours* VI, AT VI.72/CSM I.148.

([89]) *Discours* VI, AT VI.73/CSM I.148; cf. Descartes to Mersenne, [1 March 1638], AT II. 29/CSMK 90.

([90]) *Discours* VI, AT VI.63/CSM I.143.

([91]) As to chemistry, see the letter to Huygens referred to above (note 27). As to physiology, see *Discours* V, AT VI.45–6/CSM I.134. For the general problem, see also *Principia* IV. 203–4.

([92]) Petit, a military engineer, was a famous experimenter, who continually employed several artisans. Descartes came to dislike him because of his critique of the *Discours*; De Waard 1925.

([93]) For an instance in which Descartes gave Mersenne detailed instructions on the way a certain experiment should be performed, see Descartes to Mersenne, 15 May 1634, AT I. 293–4. Mersenne performed the experiment in the autumn of 1635 (Mersenne to Gassendi, 17 November 1635, CM V.484) and with opposite results six months later (CM VI.85–6); cf. Descartes to Mersenne, [March 1636?], AT I.341/CSMK 52.

([94]) For the difficulties, see Mersenne to Descartes, 15 February 1637, AT I.659–62; Descartes to Mersenne, [27 April 1637?], AT I.363–5. Usually a *privilège* was granted for one particular book after the approval by a royal censor. It protected French publishers for a period of two to ten years against pirate editions made in France. However, not only was Descartes's *Discourse* printed in the Netherlands; the *privilège* was also asked for the author. Although not impossible, *privilèges* for all works of an author were exceptional. For details, see Falk 1906: 71–4.

([95]) For more detail, see Bos and Verbeek 2013.

([96]) Descartes to Mersenne, 8 October 1629, AT I.24; 18 December 1629, AT I.100; to Beeckman, [September or October 1630], AT I.155–6; 17 October 1630, AT I.157–67). Still, there must have been a reconciliation, given the fact that there are visits on record in 1631 and 1634 (Beeckman to Mersenne, 7 October 1631, CM III.203; Descartes to Mersenne, 14 August 1634, AT I.303/CSMK 44; Descartes to [Beeckman], 22 August 1634, AT I.307–12; cf. Baillet 1691: I.260).

([97]) Fermat to Mersenne, [April or May 1637], AT I.355–61. See particularly the beginning and the end of the letter which show that Mersenne had asked Fermat for a judgement. The usual story goes back to two different testimonies of Baillet (1691: I.322 and I.358–9), of which Adam and Tannery remark that their “inaccuracies and mistakes, even with respect to the meaning of passages in letters quoted by him, are so serious that his entire testimony is invalidated” (AT I.362)—a remark unjustly forgotten. Mersenne seems to have told different stories about what happened, but put all the blame firmly on Beaugrand (Descartes to Mersenne, [22 June 1637], AT I.390–1). In February 1638 he still does not seem to have told the entire story (Descartes to Mersenne, [end of February 1638], AT II.25/CSMK 89.

([98]) Dissections: Descartes to Plempius, 15 February 1638, AT I.526–7/CSMK 81; 23 March 1638, II, 66/CSMK 95. Anatomical theatre: Descartes to Mersenne, 1 April 1640, AT III.49/CSMK 146. Rickets: Descartes to De Wilhem, 13 and 24 June 1640, AT III.91–3. Haarlem priests: Descartes to Huygens, October 1639, AT II.583–6. Murder: Descartes to Huygens [?], January 1646, AT V.262–5.

([99]) Descartes to Mersenne, 15 April 1630, AT I.145–6/CSMK 22–3; 6 May 1630, AT I.149–150/CSMK 24–5.

([100]) Descartes to Chanut, 1 February 1647, AT IV.600–17/CSMK 305–14.

([101]) Descartes to Mersenne, [20 November 1629], AT I.76–82/CSMK 10–13.

([102]) Descartes to ***, [1643], AT IV.67/CSMK 230–1 (Hobbes). For Machiavelli, see note 49.

([103]) Descartes to Newcastle, [April 1645], AT IV.188–92.

([104]) See Chapter 8 on Descartes’s mathematics.

([105]) Descartes to Mesland, 9 February 1645, AT IV.162–9; [25 May 1645], AT IV.215–17/CSMK 248–9; [End 1645–beginning 1646], AT IV.345–8/CSMK 278–9.

Theo Verbeek

Department of Philosophy and Religious Studies, Utrecht University

Erik-Jan Bos

History of Philosophy, Radboud University

Descartes on the Method of Analysis

Lex Newman

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Abstract and Keywords

This chapter proposes an interpretation of Descartes' distinction between two methods of demonstration—*analysis* and *synthesis*. A number of interpretive difficulties arise from his Second Replies account of the distinction, itself the most detailed treatment of his writings. Prima facie, that account fails to illuminate any substantive basis for distinguishing the demonstrative method employed in the *Meditations* and the demonstrative method employed in the geometric exposition (coming at the end of the Second Replies); yet Descartes represents the former as a model of analytic method, and the latter as a model of synthetic method. This is just the beginning of the prima facie interpretive puzzles arising from the Second Replies account. On the interpretation this chapter defends, the core of the analysis/synthesis distinction concerns the treatment of first principles: analytic demonstrations motivate their first principles, while synthetic demonstrations merely clarify them. As argued here, this rendering of the distinction explains everything written in the Second Replies passage, including six points of contrast between analysis and synthesis. Further, the paper develops the explanatory power of the interpretation for Descartes' various metaphysical writings. A consequence of the account is that Descartes employs analysis in each of his major works treating metaphysics—an outcome consistent with his claim that analysis is better suited to metaphysical inquiry, than is synthesis.

Keywords: analysis, demonstration, metaphysics, method, synthesis

(p. 65) THERE is no scholarly consensus on how to understand Descartes's account of the distinction of *analysis* and *synthesis*. His most detailed discussion occurs in the Second Replies and poses interpretive difficulties. For example, he points to his *Meditations* as a model of analysis—"it was this method alone which I employed in my *Meditations*" (Second Replies, AT VII.156/CSM II.111). As a model of synthesis, he recasts four lines of argument from the *Meditations* into a more obviously geometric style of demonstration—a geometric exposition published at the end of the Second Replies. Prima facie, a comparison of the two models fails to illuminate any substantive methodological difference. In both works, the arguments purport to deduce conclusions from self-evident premises;

moreover, both works cite similar premises. The literary style of the works differs, but it is unclear that *this* makes for the kind of substantive difference Descartes supposes. In his detailed explanation of the distinction, he likens analysis to *apriority*, and synthesis to *aposteriority*. Based on this, one might expect to find that the *Meditations* presents the four arguments in an *a priori* style, while the geometric exposition presents them in an *a posteriori* style. In each work, however, one finds the same mix of both a priori and a posteriori arguments.[1]

Appeals to the history of the analysis/synthesis distinction have not been fruitful. There is scant evidence linking Descartes's discussion of the distinction to historically prior accounts,[2] nor is there a unified historical tradition.[3] On one historically prominent tradition, analysis involves *resolution* or decomposition, while synthesis involves *composition*. Though some commentators have usefully explicated some of Descartes's work (p. 66) in light of this historical account,[4] it is at odds with the Second Replies account of the distinction.[5]

The account I shall propose focuses on Descartes's Second Replies treatment of the distinction. Generally unnoticed in the scholarly literature is a subtlety in his references to the apriority/aposteriority distinction. Attention to that subtlety, plus to the broader context of his discussion, suggests an account centering on the handling of first principles. In short: analytic demonstrations motivate their first principles; synthetic demonstrations merely clarify them. There is, of course, more to be said. As I shall argue, the account makes sense of everything Descartes writes about the distinction—including the claim that he uses analysis "alone" in his *Meditations*. Moreover, the account renders his interest in the method of analysis continuous with his career-long interest in the foundations of knowledge. He thinks analysis is the method of choice when one's enquiry encompasses a discovery of first principles—an endeavor he regards as an essential component in the acquisition of knowledge: to achieve perfect knowledge, "it must be deduced from first causes; thus, in order to set about acquiring it … we must start with the search for first causes or principles" (French Preface to the *Principles*, AT IXB.2/CSM I.179).

In what follows, Section 1 develops and defends the above interpretation of the analysis/synthesis distinction. Section 2 develops the explanatory power of the interpretation for Descartes's own metaphysical works, giving special attention to his two most developed works of analysis, the *Regulae* and the *Meditations*. It emerges that analysis is employed in each of Descartes's major works treating metaphysics—an outcome consistent with his claim that analysis is better suited to metaphysical inquiry than is synthesis.

1. Metaphysics and the *Analysis/Synthesis* Distinction

How is metaphysical knowledge possible? While this is a bigger question than I mean to engage, it helps frame what, for Descartes, is an important upshot of the analysis/synthesis distinction. He thinks that all prior efforts at metaphysical knowledge have failed, and

that he can explain why. His primary diagnoses focus on failures of Aristotelian thinking, in the Schools.

(p. 67) Aristotelians agree, in theory, that arguments should be based in evident principles. However, Descartes thinks their epistemological practices have prevented success in metaphysics, as evidenced by their track record at identifying metaphysical principles:

> So it is in philosophy: when one has true principles and follows them, one cannot fail to come upon other truths from time to time. Indeed the best way of proving the falsity of Aristotle's principles is to point out that they have not enabled any progress to be made in all the many centuries in which they have been followed. (French Preface to the *Principles*, AT IXB.18/CSM I.189)

One source of blame is their penchant for deriving principles from the senses, or from authorities themselves invoking the senses. Part and parcel of Descartes's own epistemological views is the unreliability of the senses in metaphysical inquiry. The problem is not simply that the senses provide an incomplete picture; worse still, the picture provided often conflicts with truth. Descartes thinks the associated problems arise especially for *metaphysical* inquiry, as opposed to other more empirically friendly fields, such as Euclidean geometry:

> The difference is that the primary notions which are presupposed for the demonstration of geometrical truths are readily accepted by anyone, since they accord with the use of our senses. Hence there is no difficulty there, except in the proper deduction of the consequences, which can be done even by the less attentive, provided they remember what has gone before ….
>
> In metaphysics by contrast there is nothing which causes so much effort as making our perception of the primary notions clear and distinct. Admittedly, they are by their nature as evident as, or even more evident than, the primary notions which the geometers study; but they conflict with many preconceived opinions derived from the senses which we have got into the habit of holding from our earliest years, and so only those who really concentrate and meditate and withdraw their minds from corporeal things, so far as is possible, will achieve perfect knowledge of them. (Second Replies, AT VII.156–7/CSM II.111)

Related issues help frame the context of Descartes's Second Replies discussion of analysis and synthesis. The distinction concerns two approaches to demonstration. The approaches are similar in regards to the *order* of the demonstrations:

> The order consists simply in this. The items which are put forward first must be known entirely without the aid of what comes later; and the remaining items must be arranged in such a way that their demonstration depends solely on what has gone before. (Second Replies, AT VII.155/CSM II.110)

In Descartes's view, the difference between analysis and synthesis arises from their respective *methods* of demonstration. The key difference, as I understand him, arises in their handling of "the items which are put forward first"—that is, in their approach to first principles.

(p. 68) Further helping to frame the context of Descartes's discussion is a request in the Second Objections that Descartes "set out the entire argument [of the *Meditations*] in geometrical fashion, starting from a number of definitions, postulates and axioms" (AT VII.128/CSM II.92). His discussion of the analysis/synthesis distinction is given as part of his response. After explaining the distinction, he offers the requested geometric account —a synthetic geometric exposition (SGE). SGE focuses on four lines of argument from the *Meditations*—three proofs of God, and a proof of the real distinction—offering a *synthetic* presentation, in contrast with their *analytic* presentation in the *Meditations*.

Here is Descartes's explanation of the distinction between analysis and synthesis:

> Analysis shows [1] the true way by means of which the thing in question was discovered methodically and [2] as it were *a priori*, so that if the reader is willing to follow it and give sufficient attention to all points, he will make the thing his own and understand it just as perfectly as if he had discovered it for himself. But [4] this method contains nothing to compel belief in an argumentative or inattentive reader; for if he fails to attend even to the smallest point, he will not see the necessity of the conclusion. Moreover [3] there are many truths which—although it is vital to be aware of them—this method often scarcely mentions, since they are transparently clear to anyone who gives them his attention.
>
> Synthesis, by contrast, employs a directly opposite method where [2] the search is, as it were, *a posteriori* (though the proof itself is often more *a priori* than it is in the analytic method). It demonstrates the conclusion clearly and [3] employs a long series of definitions, postulates, axioms, theorems and problems, so that [4] if anyone denies one of the conclusions it can be shown at once that it is contained in what has gone before, and hence the reader, however argumentative or stubborn he may be, is compelled to give his assent. However, this method is not as satisfying as the method of analysis, nor does it engage the minds of those who are eager to learn, since [1] it does not show how the thing in question was discovered.
>
> It was synthesis alone that the ancient geometers usually employed in their writings. But in my view this was not because they were utterly ignorant of analysis, but because they had such a high regard for it that they kept it to themselves like a sacred mystery.
>
> Now it is analysis which is the best and truest method of instruction, and [5] it was this method alone which I employed in my *Meditations*. As for synthesis, which is undoubtedly what you are asking me to use here, it is a method which it may be very suitable to deploy in geometry [1] as a follow-up to analysis, but [6] it

> cannot so conveniently be applied to these metaphysical subjects. (Second Replies, AT VII.155–6/CSM II.110–11)

The passage provides at least six points of contrast—here summarized in abbreviated form:

1. Analysis, unlike synthesis, is suited to the original *discovery* of truth.
2. Analysis unfolds *a priori*; synthesis unfolds *a posteriori*.
3. Synthesis, unlike analysis, employs a long series of starting assumptions.
(p. 69) **4.** Synthesis is better than analysis at inducing agreement in opponents.
5. The *Meditations* employs analysis alone, not synthesis.
6. Analysis is better suited to metaphysical inquiry than is synthesis.

The first three contrasts shed light on the nature of the distinction; the last three concern consequences of the distinction. Ideally, a satisfying interpretation should explain all six contrasts. As already noted, the fifth contrast poses a special interpretive challenge. The four lines of argument presented in SGE repeat similar lines of argument presented in the *Meditations*. How, then, can the *Meditations* be said to employ analysis *alone*, when SGE —presenting similar lines of argument—is supposed to exemplify synthesis?

On the answer I propose, the *Meditations* purports to *discover* the first principles it employs, while SGE does not. This difference lies at the heart of Descartes's understanding of the distinction. Both analysis and synthesis follow the order of demonstration. But while analytic demonstrations attempt to discover their first principles, synthetic demonstrations merely clarify them. This understanding of the distinction explains how the very same demonstrative steps might count as analysis in one context, but synthesis in another.[6] To more fully clarify the interpretation, let us consider each of the six contrasts, in turn.

1. The first contrast has it that analysis, unlike synthesis, is suited to the original *discovery* of truth. Because synthetic method presumes, rather than establishing, its first principles, it is incapable of *producing* knowledge, as opposed to demonstrating truths already known.[7] In the Preface to the French edition of the *Principles*, Descartes writes, of the "logic of the Schools", that it is "nothing but a dialectic which teaches ways of expounding to others what one already knows" (AT IXB.13–14/ CSM I.186). The *Regulae* develops the point further:

> [D]ialecticians are unable to formulate a syllogism with a true conclusion unless they are already in possession of the substance of the conclusion, i.e. unless they have previous knowledge of the very truth deduced in the syllogism. It is obvious therefore that they themselves can learn nothing new from such forms of reasoning, and hence that ordinary dialectic is of no use whatever to those who wish to investigate the truth of things. Its sole advantage is that it sometimes enables us to explain to others arguments which are already known. (AT X.406/CSM I.36–7)

(p. 70) It is because dialecticians work with presumed first principles that "ordinary dialectic is of no use whatever to those who wish to investigate the truth of things".

An implication of our interpretation is that Descartes does not intend readers of SGE to *acquire* knowledge of the four propositions demonstrated *from* that exposition, unless "as a follow-up to analysis"; i.e. unless they have already achieved knowledge of them, say, from their analytic treatment in the *Meditations*.

> **2.** On the second contrast, analysis unfolds a priori, while synthesis unfolds a posteriori. Descartes's use of this terminology appears to align with scholastic usage. Accordingly, a priori demonstrations derive effects from their causes (or from principles); a posteriori demonstrations derive causes (or principles) from their effects.[8] Yet, how can Descartes consistently invoke this contrast, given that the *Meditations* and SGE each offers both a priori and a posteriori arguments?

A routinely overlooked subtlety of the passage is that Descartes thinks the apriority/aposteriority distinction may be applied at two levels: either at the level of the broader *inquiry* (the "search"), or at the level of the *proofs* themselves. He writes that with synthesis, "the search" is *a posteriori*, while adding of "the proof itself", that it "is often more *a priori* than it is in the analytic method". Consider the level of the broader inquiry. I take Descartes's point to be that in a synthetic demonstration, the broader inquiry *begins* with conclusions already known (as per the first contrast, above). Only then does one devise a set of starting principles (definitions, postulates, etc.); indeed, the choice in principles is specifically tailored to the already known conclusion, ensuring that those principles enable its deduction. Thus understood, at the level of the broader inquiry, synthesis proceeds a posteriori, deriving starting principles from already known effects. Consider the level of the proofs themselves—i.e. the proofs employing those definitions, postulates, etc., *as* premises. The proof itself might proceed in either manner: a priori, deriving effects from principles; or a posteriori, deriving principles from effects. What the passage implies is simply that the proof is "often" a priori, but not that it always is.

One can see this distinction of levels in Descartes's *own* synthetic treatment, SGE. At the level of the broader inquiry, he purports already to *know* the four propositions there demonstrated;[9] and he now devises a set of starting principles (definitions, postulates, etc.), with the aim of demonstrating the four propositions. At the level of the proofs themselves, we find a mix of apriority and aposteriority:[10] the first and fourth proofs are a priori; the second and third are a posteriori.

(p. 71) By implication, a similar distinction of levels, between the broader inquiry, and the proofs, applies also to analytic demonstrations. In the broader inquiry, analysis begins with an effort to discover relevant first truths, within some broad topic of interest. But how does this discovery proceed, given that the eventual conclusion is yet unknown? Consider a thought experiment—with the aim of sketching an example narrative of analysis, itself consistent with our interpretation. Imagine an investigator who does not yet know the ultimate conclusions that will be deduced: a general topic of inquiry has been set, but not yet the outcome. (In theory, the Second Meditation meditator is in this situation—in-

vestigating the nature of the "I" of the *cogito*, but yet unaware of the eventual conclusion, that minds and bodies are really distinct.) Aided by good methods of discovery,[11] the investigator arrives at some basic truths relevant to the broader topic of inquiry. (These truths are still not formulable as definitions, postulates, etc., because any such formulation already supposes a specific conclusion to be deduced.) Building on these basic truths, the investigator then tries to link ideas, making conceptual connections to deduce further truths. Absent the likes of syllogistic forms to operationalize the process,[12] the business of deducing conclusions can seem open-ended—a problem of which Descartes is aware.[13] For present purposes, what is of interest is that, in analysis, the broader inquiry does not derive first principles from conclusions already known. And in this sense, analysis does not proceed a posteriori. Indeed, insofar as the discovery of first truths arises from the application of *methodological principles*—of the sort Descartes thinks he codifies—that discovery can be said to proceed "as it were [*tanquam*] *a priori*", deriving effects from causes. Shifting to the level of the proofs themselves, we have already noted that both analysis and synthesis can consistently employ proofs of either the a priori or the a posteriori sort.

It is worth noting that the primary orientation of the Second Replies passage seems focused on the nature of synthesis as applied to the *broader inquiry*. Its application to the proofs themselves is treated secondarily, or parenthetically. We have seen that, at the level of the broader inquiry, analysis is correctly likened to apriority, and synthesis to aposteriority. This explains why Descartes can consistently describe each in these terms, all the while offering a mix of a priori and a posteriori proofs, in both the *Meditations* and SGE.[14]

(p. 72)

> **3.** The third contrast has it that synthesis, unlike analysis, employs a long series of first principles.[15] SGE begins with a statement of twenty-seven first principles: ten definitions, seven postulates, and ten axioms or common notions. Readers are supposed to be able to follow the logic, noticing that the conclusions drawn are a logical consequence of those principles—even if they might question some of them. This is synthesis. The broader argumentative effort deduces its conclusions from a series of assumed principles—i.e. *assumed* in the sense of including no express effort at discovery.

In his analytic works, Descartes's intention is (in theory) to assume nothing, instead *motivating* each basic truth via methodical inquiry. Does analysis require—literally and fully—an assumption-free inquiry? Presumably not.[16] The passage indeed acknowledges that there are "many truths" which the method of analysis "often scarcely mentions, since they are transparently clear to anyone who gives them his attention". More plausibly, analysis requires one's inquiry to be free of presumed *principles*, qua *general* truths.[17] This understanding finds support in Descartes's handling of objections to the effect that the *cogito* is not assumption free. For instance, in regards to the principle, "Everything which thinks is, or exists", he writes that one

> learns it from experiencing in his own case that it is impossible that he should think without existing. It is in the nature of our mind to construct general propositions on the basis of our knowledge of particular ones. (Second Replies, AT VII. 140–1/CSM I.100)

Elsewhere, addressing essentially the same objection—that the *cogito* presupposes the principle "Whatever thinks exists" as a "preconceived opinion"—Descartes adds:

> For when we examine it, it appears so evident to the understanding that we cannot but believe it, even though this may be the first time in our life that we have thought of it—in which case we would have no preconceived opinion about it … It is certain that if we are to discover the truth we must always begin with particular notions in order to arrive at general ones later on (though we may also reverse the order and (p. 73) deduce other particular truths once we have discovered general ones). Thus when we teach a child the elements of geometry we will not be able to get him to understand the general proposition "When equal quantities are taken from equal amounts the remaining amounts will be equal," or "The whole is greater than its parts," unless we show him examples in particular cases. (Appendix to Fifth Replies, AT IXA.205–6/CSM II.271)

But even putting to the side any lingering questions specific to the *cogito*, it is apparent that an utterly assumption-free inquiry is not a real possibility. Even so, there seems a clear enough difference between an inquiry that begins with a list of assumed general principles, and an inquiry which purports to discover them. This is the essence of the third contrast.

4. The fourth contrast is that synthesis is better than analysis at inducing agreement in opponents. Some commentators take Descartes's point, in the relevant passage, to be that in analysis demonstrations do not compel assent, unlike in synthesis.[18] But I suggest instead that his point dovetails with the third contrast. Accordingly, the convention of providing an opening statement of starting assumptions provides an obvious and clear fallback when dealing with opponents. For example, consider the SGE demonstration of the real distinction:

> Now if one substance can exist apart from another the two are really distinct (Def. X). But the mind and the body are substances (Defs. V, VI and VII) which can exist apart from each other (as has just been proved). Therefore there is a real distinction between the mind and the body. (AT VII.170/CSM II.120)

If a reader objects to the conclusion, Descartes can refer the objector to definitions V, VI, VII, and X. If the objection arises from inattentiveness, the refocus on relevant starting assumptions may provide quick and effective resolution. Where, instead, the objection arises from stubbornness, the fallback definitions may help to clarify the supposed point of disagreement; in many cases, a large measure of dissension is fueled by a lack of clarity as to the source of disagreement. Synthesis can thus prove helpful when dealing with opponents. Analysis, on the other hand, offers no obvious and clear fallback position. If

opponents do “not see the necessity of the conclusion”—whether from inattention, or stubbornness—they are not so easily “shown at once that it is contained in what has gone before”. Rather, the only resort may be to start over, from the very beginning, repeating an arduous procedure that was advertised as a *semel in vita* endeavor. Synthesis does therefore offers advantages over analysis when dealing with opponents. Note also that with this understanding of the fourth contrast, Descartes can allow that the proofs themselves—in both analysis and synthesis—are capable of compelling assent in the minds of attentive readers.

(p. 74)

5. According to the fifth contrast, the *Meditations* employs analysis alone, not synthesis. On the present interpretation, the credibility of this claim is a function not of the structure of the arguments, per se, but the absence of merely assumed first principles. The point of saying that the *Meditations* employs analysis “alone” is that it purports to *discover* the principles it employs, in every case—that is, at no juncture does the inquiry of the *Meditations* fall into synthetic mode, employing unmotivated principles. One can of course question whether the *Meditations* lives up to this standard of analysis. But it suffices for the present interpretation that this *is* the standard of analysis, whether or not the *Meditations* is in full compliance.

6. On the sixth (and final) contrast, analysis is better suited to metaphysical inquiry than is synthesis. Section 1 began with a look at issues related to this contrast. Synthesis does not so much produce knowledge as help to explain existing knowledge. But given Descartes’s epistemological views, the original production of knowledge depends on having discovered first principles. In the context of metaphysical inquiry, problems ensue because its first principles do not accord with sense experience. Thus the need for analysis—a method of inquiry tailored to the discovery of principles in metaphysics. The sixth contrast is therefore closely linked with the first contrast. Synthetic demonstrations are simply not suited to metaphysical inquiry, unless “as a follow-up to analysis”.

In summary, I have argued that the analysis/synthesis distinction turns on the handling of first principles. Analysis incorporates efforts to discover them; synthesis simply clarifies them. Successful analysis produces knowledge from its very foundations; successful synthesis merely helps to explain what we already know. I have argued that the interpretation has the virtue of making sense of everything Descartes writes in the Second Replies passage—including his appeals to the apriority/aposteriority distinction, as well as his claim of using “only” analysis in the *Meditations*. The interpretation has the further virtue of aligning with Descartes’s career-long interest in the foundations of knowledge.

2. Analysis in Descartes’s Metaphysical Works

It is unclear whether Descartes’s account of analysis, as represented in the Second Replies, is continuous with his views of analysis at the time when composing the *Regulae*. There are suggestions of continuity. For example, both the *Regulae* and the Second

Replies make the twofold claim (a) that Descartes is extending insights gleaned from ancient geometers, and (b) that those geometers had tried to keep the method secret:

> [W]e are well aware that the geometers of antiquity employed a sort of analysis which they went on to apply to the solution of every problem, though they begrudged revealing it to posterity. (Rule 4, AT X.373/CSM I.17)

(p. 75)

> It was synthesis alone that the ancient geometers usually employed in their writings. But in my view this was not because they were utterly ignorant of analysis, but because they had such a high regard for it that they kept it to themselves like a sacred mystery. (Second Replies, AT VII.156/CSM II.111)

Moreover, the express aims of the *Regulae* are continuous with the Second Replies account, insofar as presenting a method suitable to the discovery of truth, and the achievement of knowledge:

> [I]t is far better never to contemplate investigating the truth about any matter than to do so without a method. … By "a method" I mean reliable rules which are easy to apply, and such that if one follows them exactly, one will never take what is false to be true or fruitlessly expend one's mental efforts, but will gradually and constantly increase one's knowledge till one arrives at a true understanding of everything within one's capacity. (Rule 4, AT X.371–2/CSM I.16)

On the other hand, Rule 4 goes on to refer to Pappus in remarks seeming to point the other way. The reference can be read to suggest that Descartes associates the "sort of analysis" cited earlier, in Rule 4, with Pappus's account of analysis—an account at odds with Descartes's Second Replies discussion. And, of course, we cannot rule out that Descartes has a different reading of Pappus's account.

Though historically interesting, the issue of Descartes's precise views of analysis, when writing the *Regulae*, is inconsequential for our purposes. What I wish to focus on are the broader implications of Descartes's Second Replies account for his long-term interests in metaphysical inquiry. The broader method of the *Regulae*—whatever Descartes called it, at the time—*is* continuous with the broader method of the *Meditations*, insofar as pursuing the discovery of first principles as an essential component of metaphysical inquiry. In this regard, both accounts reveal a consistent interest in Cartesian analysis, as we have characterized it. Though, as will emerge, both works present methods for the discovery of first principles, the methods they present differ. This is consistent with our interpretation of analysis. Accordingly, what makes an inquiry count *as* analysis is not *how* the discovery of first principles is pursued, but *that* it is pursued.

In the remainder of Section 2 I try to clarify the analytical strain running throughout Descartes's works on metaphysics—i.e. *analytical* in the Second Replies sense. I focus pri-

marily on the accounts of the *Regulae* and the *Meditations*, and to a lesser extent on the *Discourse* and the *Principles*.

2.1. Analysis in the *Regulae*

Among other innovations, the *Regulae* presents a new model of *deduction*. Prima facie, one's views of deduction might not seem relevant to analysis. However, since Descartes wants a conception of deduction tethering it to known first principles, it is very much relevant. Before considering how the broader method of the *Regulae* contributes to (p. 76) analysis, I want briefly to clarify some of the broader concerns associated with his account of deduction.

Descartes hopes to redress what he sees as epistemic shortcomings with the then-dominant model, Aristotelian syllogism. Among the principal concerns, he thinks syllogism does little to advance truth, much less knowledge. Problems center on its handling of first principles. His view is not that syllogism is inherently synthetic. In theory, one could incorporate syllogism in an analytic inquiry; say, by combining demonstrative syllogisms—themselves employing, as premises, only evident truths that are primary, or basic—with a reliable process to discover such premises.[19] In practice, however, scholastic philosophers are apt to employ syllogism in inquiries that are not only synthetic, but rely on dubious, sense-based principles. His worry is that syllogistic reasoning dissociated from a method for discovering first principles can do no more than demonstrate *consequences*, but not *truths*. Descartes thus contrasts his own new model of deduction with the syllogistic model, in terms of their consequences for truth:

> Some will perhaps be surprised that in this context, where we are searching for ways of making ourselves more skilful at deducing some truths on the basis of others, we make no mention of any of the precepts with which dialecticians suppose they govern human reason. They prescribe certain forms of reasoning in which the conclusions follow with such irresistible necessity that if our reason relies on them, even though it takes, as it were, a rest from considering a particular inference clearly and attentively, it can nevertheless draw a conclusion which is certain simply in virtue of the form. But, as we have noticed, truth often slips through these fetters, while those who employ them are left entrapped in them. (Rule 10, AT X.405–6/CSM I.36)

In being truth-preserving, syllogism ensures that one's conclusions follow, logically. But it does not ensure that one's conclusions are true, much less that they are known. In the preface to the French edition of the *Principles*, Descartes adds—while discussing how Aristotelian principles in the Schools have obstructed philosophers from achieving "knowledge of true principles":

> Now none of the conclusions deduced from a principle which is not evident can themselves be evident, even though they may be deduced from the principle in an evident manner. It follows that none of the arguments based on such principles have been able to provide their proponents with certain knowledge of anything,

> and accordingly such arguments have not been able to bring them one step further in their search for wisdom. (AT IXB.8/CSM I.183)

(p. 77) Answering to such concerns, the *Regulae* account reconceives deduction, rendering it in epistemic terms—quite unlike the model of syllogism whereby deduction is epistemically neutral. Descartes wants an account that is not merely truth-preserving, but knowledge-preserving;[20] indeed, he wants a stronger result, namely an account which is knowledge-assuring. As we shall see, the *Regulae* account of deduction entails not merely that the conclusion is known *if* the premises are known; it entails further that the premises of deductions *are* known.

Descartes offers this summary of the *Regulae's* broader method:

> The whole method consists entirely in the ordering and arranging of the objects on which we must concentrate our mind's eye if we are to discover some truth. We shall be following this method exactly if we first reduce complicated and obscure propositions step by step to simpler ones, and then, starting with the intuition of the simplest ones of all, try to ascend through the same steps to a knowledge of all the rest. (Rule 5 summary, AT X.379/CSM I.20)

This account is not merely foundationist in structure, it purports to lay the very foundations themselves. We may summarize the method as having three phases: first, *simplification*—the ordering and reducing of complex matters to simpler ones; second, *intuition*—the distinct apprehension of simple truths; third, *deduction*—the expansion of knowledge via further inferences. On the interpretation of Section 1, an inquiry following this threefold process counts as analysis.[21] Consider in more detail how each phase is tied to analytic method.

The first phase, *simplification*, is a discovery phase designed to reveal first principles. The aim is to prepare the mind for the eventual achievement of intuitions (the second phase). Descartes suggests procedures by which "to distinguish the simplest things from those that are complicated and to set them out in an orderly manner" (Rule 6, AT X.381/CSM I. 21). Such procedures help the mind identify the ultimate simples, *simple natures*—themselves, objects of intuitions.[22]

In the epistemological scheme of the *Regulae*, conceptual simplification is an epistemic path to truth. An underlying assumption is that simplicity, in mental content, entails an (p. 78) apprehension of simple natures. Consequently, the strategy for an understanding of the nature of reality is to achieve an apprehension of simple natures, and the compositions they form: "it is not possible for us ever to understand anything beyond those simple natures and a certain mixture or compounding of one with another" (Rule 12, AT X. 422/CSM I.46); "the whole of human knowledge consists uniquely in our achieving a distinct perception of how all these simple natures contribute to the composition of other things" (Rule 12, AT X.427/CSM I.49). Related is that *falsity* arises not from the apprehension of simple natures, but from a confused awareness of composite contents: "there can be no falsity save in composite natures which are put together by the intellect" (Rule 8,

AT X.399/CSM I.32); “these simple natures are all self-evident and never contain any falsity” (Rule 12, AT X.420/CSM I.45). Rule 12 adds:

> [I]t is evident that we are mistaken if we ever judge that we lack complete knowledge of any one of these simple natures. For if we have even the slightest grasp of it in our mind … it must follow that we have complete knowledge of it. Otherwise it could not be said to be simple, but a composite made up of that which we perceive in it and that of which we judge we are ignorant. (AT X.420–1/CSM I.45)

Simplification therefore emerges as a core discovery component of the *Regulae’s* method of analysis.

The second phase of the method, *intuition*, marks the beginnings of knowledge-acquisition. Intuition is defined in epistemic terms. It is construed not simply as non-inferential apprehension, but as constituting our most certain knowledge.[23] The *Regulae* defines *knowledge* (*scientia*) as “certain and evident cognition” (Rule 2, AT X.362/CSM I.10). Intuition is understood as the paradigm of certain and evident cognition:

> By “intuition” I do not mean the fluctuating testimony of the senses or the deceptive judgement of the imagination as it botches things together, but the conception of a clear and attentive mind, which is so easy and distinct that there can be no room for doubt about what we are understanding. Alternatively, and this comes to the same thing, intuition is the indubitable conception of a clear and attentive mind which proceeds solely from the light of reason. (Rule 3, AT X.368/CSM I.14)

That the achievement of intuition entails knowledge marks an important shift from scholastic practice. On Descartes’s understanding, the dialecticians in the Schools do not require first principles to be items of knowledge—he writes that “awareness of first principles is not normally called ‘knowledge’ [*scientia*] by dialectitians [sic]” (Second Replies, AT VII.140/CSM II.100). Whereas, in Descartes’s own philosophy, all other knowledge must be grounded in knowledge of foundational truths.

(p. 79) What more is needed to achieve intuition, beyond successful simplification via the first phase? It appears that in at least some cases Descartes thinks nothing more is needed. The method supposes that intuitive apprehension is a natural result of carrying out the simplification process: “we need take no great pains to discover these simple natures, because they are self-evident enough” (Rule 12, AT X.425/CSM I.48). This is the case for natures that are “simple in the highest degree”; whereas, “for all the other natures, we can apprehend them only by deducing them from those which are simple in the highest degree” (Rule 6, AT X.383/CSM I.22).

The third phase, *deduction*, is also a discovery phase—expanding the truths apprehended in intuition, to further truths requiring proof. And like intuition, deduction is construed so as to entail knowledge. On Descartes’s definition, a deduction occurs only if (a) the conclusion is apprehended to follow with necessity from other propositions, and (b) those other propositions are themselves apprehended in intuition. He characterizes deduction

as the “inference of something as following necessarily from some other propositions which are known with certainty”: a deduction occurs only if the conclusion is “inferred from true and known principles”; that is, in an inference wherein “each individual proposition is clearly intuited” (Rule 3, AT X.369/CSM I.15). Consequently, the account has it that *deduction* is a success term entailing the achievement of knowledge.

Part of what is on offer, in the *Regulae’s* new account of deduction, is a non-formal model of inference, involving chains of intuitions. His non-formal model is perhaps best illustrated with identity statements. Suppose that knowledge of the proposition “A = D” is achieved via a series of intermediate intuitions, including that A = B, B = C, and C = D. By arranging these intuitions as links in a chain, they enable the mind to apprehend the identity of the outer links, A and D. By design, the deduction of “A = D” occurs only via an apprehension of conceptual connections, across the chain of intuitions.[24] Of special interest to Descartes is to ensure that successful deductions occur only when the reasoning mind *grasps* logical connections, for itself. By contrast, he thinks syllogism enables a kind of mindless application of logic, because of the underlying *formalist* approach to deduction. Accordingly, good reasoning is understood in terms of logical structures, or *forms*, consisting of prescribed syntactic structures. For instance, the form named “Barbara” has the following structure: All M is P; all S is M; therefore, all S is P. Upon filling in terms—say, “men” for M, and “mortal” for P, with the resulting major premise, “All men are mortal”, etc.—the resulting argument is guaranteed to have good reasoning. While formal approaches to deduction may guarantee validity, they are less effective at guaranteeing a conceptually engaged mind. The reasoning thinker is able to generate certified deductions by a mindless application of rules, that is, while one’s *own* reasoning capacity is, as it were, on holiday:

> Our principal concern here is thus to guard against our reason’s taking a holiday while we are investigating the truth about some issue; so we reject the [syllogistic] (p. 80) forms of reasoning just described as being inimical to our project. Instead we search carefully for everything which may help our mind to stay alert, as we shall show below. But to make it even clearer that the aforementioned art of reasoning contributes nothing whatever to knowledge of the truth, we should realize that, on the basis of their method, dialecticians are unable to formulate a syllogism with a true conclusion unless they are already in possession of the substance of the conclusion, i.e. unless they have previous knowledge of the very truth deduced in the syllogism. It is obvious therefore that they themselves can learn nothing new from such forms of reasoning, and hence that ordinary dialectic is of no use whatever to those who wish to investigate the truth of things. Its sole advantage is that it sometimes enables us to explain to others arguments which are already known. It should therefore be transferred from philosophy to rhetoric. (Rule 10, AT X.406/CSM I.36–7)

Summing up our discussion of *Regulae*, its three-stage method exemplifies an analytic method. First principles are *discovered* by procedures of simplification. Intuitive knowledge is the apprehension of such principles. Deduction—itself a form of knowledge—is es-

sentially grounded in intuitions, and thereby tethered to first principles. To learn the *Regulae's* method, including its new account of deduction, is therefore to learn an analytic method for achieving new knowledge.

2.2. Analysis in the *Meditations*

The *Meditations* embodies the most developed method of analysis in Descartes's mature works. While there is much to say about the methodological character of the *Meditations*, our interest is focused on its *analytic* character. The discussion unfolds in three parts. First, I explain that perceptual distinctness takes over the important epistemic role which, in the *Regulae*, is played by simplicity. Second, I explain how Descartes employs the so-called "method of doubt" as a primary means of achieving perceptual distinctness. Third, I discuss how God is supposed to guarantee the truth of distinct perceptions, thereby assuring that the broader method terminates in truth.[25]

2.2.1. *Perceptual* Distinctness, *not* Simplicity, *as the Path to Truth*

Perceptual *clarity and distinctness* emerges as the fundamental criterion of truth. Descartes defines these terms as follows:

> A perception which can serve as the basis for a certain and indubitable judgement needs to be not merely clear but also distinct. I call a perception "clear" when it is present and accessible to the attentive mind … I call a perception "distinct" if, as well as being clear, it is so sharply separated from all other perceptions that it contains within itself only what is clear. (*Principles* I.45, AT VIIIA.21–2/CSM I. 207–8)

(p. 81) Since every distinct perception is also clear, we may refer simply to *distinctness* as a shorthand.[26] Whereas the *Regulae* emphasizes the apprehension of *simple contents*, the *Meditations* emphasizes the epistemic character of the *apprehension* itself—namely, its distinctness. To be sure, perceptual distinctness matters also in the *Regulae*. The account there assumes that our perception of simple contents is always distinct, and that our most distinct perceptions are always of simple natures: "we term 'simple' only those things which we know so clearly and distinctly that they cannot be divided by the mind into others which are more distinctly known" (Rule 12, AT X.418/CSM I.44). Thus, in the *Regulae*, since simplicity guarantees distinctness, conceptual simplification provides an epistemic path to distinctness. In the mature philosophy, however, the epistemic doctrines associated with simplicity are not present. Simplicity is no longer an assumed path to perceptual distinctness:

> A concept is not any more distinct because we include less in it; its distinctness simply depends on our carefully distinguishing what we do include in it from everything else. (*Principles* I.63, AT VIIIA.31/CSM I.215)

Perceptual simplicity does continue to hold sway. Complex ideas are more likely to be confused than are the simpler ideas they comprise. This is to say that simpler ideas are more easily rendered distinct. But though perceptual simplicity conduces to distinctness,

it *merely* conduces.[27] In the *Meditations*, we thus find an emphasis on distinctification strategies which do not necessarily revolve around simplification.

The Second Meditation might appear to present a counterexample. For it might seem that the *aim* of the account there is to *simplify* two conceptions: the idea of the thinking subject, specifically the "I" of the *cogito*; and the idea of body, specifically of the "wax". I suggest, however, that this misunderstands Descartes's aims. Clearly, his procedure is intended to *refine* our pre-philosophic conceptions of mind and body. But though the refinement process happens to involve simplification, the resulting simplicity of the two conceptions is not an intrinsic feature of the methodology, nor an expressed aim of the method. The texts indicate that the stated aim is to render the two conceptions *distinct*, not confused.[28] The method employed involves subtracting away non-essential features of one's pre-philosophical conceptions (invoking doubt, as a tool), with the aim of arriving at precisely what is essential to mind and body. At no point does the (p. 82) Second Meditation account assume that perceptual simplicity is *the* epistemic path to perceptual distinctness.

One consequence of the shift from *Regulae* doctrines about simple natures is the need for a new account of *error*. Recall, the *Regulae* renders error in terms of perceptual complexity—"there can be no falsity save in composite natures", because simple natures "never contain any falsity". Related is that the *Regulae* renders judgment as an operation of the *intellect*.[29] The *Meditations* offers a new account. Descartes now conceives of judgment as operation of the *will*,[30] with perceptual distinctness holding the key to avoiding error. The intellect and the will cooperate in the formation of judgment. The intellect's role is to consider perceptual contents—such contents presenting the subject matter for possible judgments. The will's role involves forming the judgment—adopting an attitude of assent or dissent (or suspension) concerning the perceptual content under consideration. The possibility of error arises because of a scope disparity between what the intellect can understand, and what the will can affirm. Actual errors themselves arise from what Descartes characterizes as an "incorrect use of free will"—namely, our giving assent in cases in which we lack distinct perception.[31]

Related to the shift from the *Regulae's* account of simplicity and error are the terms in which the *Meditations* expresses its final guarantee of truth. In connection with the theistic foundations of knowledge—a further new feature of the mature epistemology (discussed below)—Descartes purports to establish a divinely guaranteed *truth rule*, itself stated in terms of clarity and distinctness, not simplicity.

The spirit of the *Regulae's* three-step foundationist method endures, in the *Meditations*. Good analytic method continues to involve, first, a process to discover first truths; second, the self-evident and distinct perception of those truths; and third, the deduction of further distinctly perceived truths. Among the new innovations is a new method of achieving distinct perception of first truths—the method of doubt.

2.2.2. *Methodical* Doubt *as a Path to Perceptual Distinctness*

Perceptual distinctness is the end; methodical doubt is the means. In contrast with skeptics "who doubt only for the sake of doubting", Descartes's own aim is "to reach certainty" (*Discourse* III, AT VI.28–9/CSM I.125).

(p. 83) How does the method work? Methodical doubt is supposed to help strip away the confused elements in one's perceptions, leaving the parts (if any) that are distinct. Descartes makes an analogy to the search for suitable foundations on which to build physical structures. In such cases, a possible worry—absent proper tools—is that unstable ground might be mistaken for bedrock. Likewise, in the search for epistemic foundations, false beliefs might be mistaken for first principles—a worry Descartes thinks is realized in Aristotelian philosophy. The proposed solution: just as literal bulldozers can undermine unstable ground, epistemic bulldozers (as it were) can undermine unstable beliefs. The method assumes that the *unshakable* beliefs surviving the process are suitable for the foundations of knowledge. Descartes explains the analogy:

> Throughout my writings I have made it clear that my method imitates that of the architect. When an architect wants to build a house which is stable on ground where there is a sandy topsoil over underlying rock, or clay, or some other firm base, he begins by digging out a set of trenches from which he removes the sand, and anything resting on or mixed in with the sand, so that he can lay his foundations on firm soil. In the same way, I began by taking everything that was doubtful and throwing it out, like sand; and then, when I noticed that it is impossible to doubt that a doubting or thinking substance exists, I took this as the bedrock on which I could lay the foundations of my philosophy. (Seventh Replies, AT VII.536–7/ CSM II.366)

Though the method employs skeptical hypotheses that are later disproven, Descartes views this as consistent with the method of analysis.[32] Indeed, he holds that methodical doubt is "wholly necessary in order to lay the first foundations of philosophy" (to Voetius, AT VIIIB.37/CSMK 221).

The strategy of methodical doubt is in full display, in the groundwork phase of the *Meditations*. For example, the *cogito*—Descartes's most famous first truth—is *discovered*, rather than simply stated. The Second Meditation reasons its way to the "I exist" by noticing its doubt-resistance to the dreaming doubt and the evil genius doubt.

A related doctrine of Descartes's mature philosophy is an epistemological nativism. Our minds are prewired with innate concepts. In typical cases, distinct perceptions tap into innate intellectual concepts. As long as these concepts provide true representations of the nature of reality, perceptual distinctness provides an epistemic path to truth. But what if the innate concepts of our minds do *not*, after all, provide true representations of reality? As part of his analytic quest for unshakable foundations, Descartes explores this possibility via the evil genius scenario.

(p. 84) 2.2.3. God as the Ultimate Foundation of Knowledge

Whereas the *Regulae* simply *assumes* a fit between our innate concepts and reality, the *Meditations* purports to *demonstrate* the fit. Descartes purports to demonstrate a God who guarantees the truth of judgments based on distinct perceptions. Putting to the side the philosophical merits of the new doctrine, it represents the ultimate in Cartesian analysis—the discovery of a principle guaranteeing a fit between mind and world.

In the new epistemology, knowledge of God—an all-perfect being, who cannot deceive—is a necessary condition of strict knowledge:[33] "Thus I see plainly that the certainty and truth of all knowledge depends uniquely on my awareness of the true God, to such an extent that I was incapable of perfect knowledge about anything else until I became aware of him" (Meditation V, AT VII.71/CSM II.49). Accordingly, neither atheists nor agnostics can achieve perfect knowledge, because, by hypothesis, they have not demonstrated the divine guarantee of perceptual distinctness. Descartes explains:

> The fact that an atheist can be "clearly aware [*cognoscere*] that the three angles of a triangle are equal to two right angles" is something I do not dispute. But I maintain that this awareness [*cognitionem*] of his is not true knowledge [*scientiam*], since no act of awareness [*cognitio*] that can be rendered doubtful seems fit to be called knowledge [*scientia*]. Now since we are supposing that this individual is an atheist, he cannot be certain that he is not being deceived on matters which seem to him to be very evident (as I fully explained). (Second Replies, AT VII.141/CSM II.101)

This aspect of the epistemology is tied to the method of doubt. The possibility that our epistemically best perceptions—distinct perceptions—might *not* fit reality, is itself underwritten by the evil genius doubt.

> [P]erhaps some God could have given me a nature such that I was deceived even in matters which seemed most evident. And whenever my preconceived belief in the supreme power of God comes to mind, I cannot but admit that it would be easy for him, if he so desired, to bring it about that I go wrong even in those matters which I think I see utterly clearly with my mind's eye. (Meditation III, AT VII.36/CSM II.25)

Perfect knowledge (*scientia*) purports finally to be achieved only upon overcoming the evil genius doubt. Of course, the endeavor of demonstrating a divine guarantee of distinct perception—*via* distinctly perceived premises—raises the notorious Cartesian circle. Whatever one's verdict on the circularity issue, the very effort at not only discovering the foundations of knowledge, but *hardening* them via a divine guarantee, reflects Descartes's deep interest in analytic method.

(p. 85) 2.3. Analysis in the *Discourse* and *Principles*

I have focused on the *Meditations* in order to clarify Descartes's mature efforts at the method of analysis. Two other works—the *Discourse* (notably part 4) and the *Principles* (part 1)—explore similar metaphysical themes and deserve comment. Granting our interpretation of Cartesian analysis, I suggest we view both works as written in the spirit of analysis, though neither is analytically developed to the extent of the *Meditations*. I take both accounts to be hybrid accounts of a sort, though in very different ways: I read the *Discourse* as a hybrid of the analytical methods of the *Regulae* and the *Meditations*; whereas the *Principles* is a hybrid of the analysis of the *Meditations* along with further passages that are more synthetic.[34]

The hybrid aspects of the *Discourse* make it a kind of halfway house between the analyses of the *Regulae* and the *Meditations*. Echoing the *Regulae*, we find remnants of the doctrine of simple natures. For instance, in *Discourse* 2—in a context reflecting on the analysis of the ancients (in contrast with syllogistic logic)—Descartes formulates four rules that he suggests we employ "in place of the large number of rules that make up logic" (AT VI. 18/CSM I.120). The second and third are suggestive of the role of simple conceptions that one finds in the *Regulae*:

> The second, to divide each of the difficulties I examined into as many parts as possible and as may be required in order to resolve them better.
>
> The third, to direct my thoughts in an orderly manner, by beginning with the simplest and most easily known objects in order to ascend little by little, step by step, to knowledge of the most complex, and by supposing some order even among objects that have no natural order of precedence. (*Discourse* II, AT VI.18–9/CSM I. 120)

In yet further ways, *Discourse* 2 can be seen as inheriting much from the *Regulae*.[35] In significant other respects, however, the epistemology of the *Discourse* anticipates analytical methods of the *Meditations*. Notably, this occurs in part 4, with the employment of methodical doubt. For example, the *cogito* is treated as a first principle itself derived from contemplation on doubt:

> But immediately I noticed that while I was trying thus to think everything false, it was necessary that I, who was thinking this, was something. And observing that this truth "*I am thinking, therefore I exist*" was so firm and sure that all the most extravagant suppositions of the sceptics were incapable of shaking it, I decided that I could accept it without scruple as the first principle of the philosophy I was seeking. (*Discourse* IV, AT VI.32/CSM I.127)

(p. 86) Likewise, the *rule* of clarity and distinctness—itself a foundational epistemic principle—purports to be derived, rather than assumed:

> I observed that there is nothing at all in the proposition "*I am thinking, therefore I exist*" to assure me that I am speaking the truth, except that I see very clearly that in order to think it is necessary to exist. So I decided that I could take it as a general rule that the things we conceive very clearly and very distinctly are all true. (*Discourse* IV, AT VI.33/CSM I.127)

The comparisons, however, should not be overstated. Nothing in the account suggests that a procedure of simplification is sufficient for the discovery of first truths, unlike what one finds in the *Regulae*. Nor does the invocation of doubting arguments encompass the full-blown engagement with methodical doubt one finds in the *Meditations*: strikingly, there is no evil genius doubt, nor is there a doubt about the existence of the external world, in its entirety.[36] The *Discourse* does purport to demonstrate the existence of a God on which all other beings depend. Unlike in the *Meditations*, however, the dependence is ontological, but not also epistemological—i.e. he does not make the case that all other knowledge depends on our knowledge of God. In short, there is little basis for characterizing the epistemology of *Discourse* 4 as resting on theistic foundations, as one finds in the *Meditations*.[37]

The hybrid nature of *Principles* 1 takes a different form—mixing both analysis and synthesis. One indicator of this stems from a 1641 letter wherein Descartes references a new work he has begun—namely, the *Principles*:

> I have resolved to spend it [the coming year] in writing my philosophy in an order which will make it easy to teach. The first part, which I am working on at present, contains almost the same things as the *Meditations* which you have, except that it is in an entirely different style, and what is written at length in one is abbreviated in the other, and vice versa … (AT III.276/CSMK 167)

That the "first part" of this work "contains almost the same" content, but is presented "in an entirely different style", might be read as an allusion to its having a synthetic mode of presentation. However, based on our interpretation of analysis, I suggest a different (p. 87) reading. Many of the arguments of *Principles* 1 are abridged renderings of counterpart arguments in the *Meditations*, even to the extent of following the method of analysis. For example, the opening sections purport to *discover* the *cogito*, as a first truth, and to do so via methodical doubt: sections 1–7 summarize the main issues raised in the First Meditation; section 7 then derives the *cogito*, on the basis of its resistance to doubt. This material *is* presented in a "different style" than in the *Meditations*—notably, in having more of a *summary bullets* style, as opposed to the meditative, first-person style of the *Meditations*. Nonetheless, both styles comport with the method of analysis: neither begins with merely assumed first principles; both explain issues intended to help discover them.[38]

Other argumentative passages of *Principles* 1 are either not mere summaries of material in the *Meditations*, or do not summarize issues of discovery. For example, section 39 asserts that freewill is self-evident; section 52 asserts a substance/mode ontology; section 58, that universals are modes of thought; and so on. Whether or not Descartes thinks

these summary statements can be derived from material in the *Meditations*, his intention in stating them seems to be merely to clarify central, fundamental principles of his metaphysics, but not the conceptual path by which they are discovered. If that is correct, the presentation of these parts of *Principles* 1 looks *more* synthetic, even if not in the full-fledged sense of SGE. Consequently, it emerges that *Principles* 1 unfolds as part analysis and part synthesis.[39]

3. Conclusion

Focusing on the account in the Second Replies, I have argued that the key to Descartes's analysis/synthesis distinction lies in the handling of first principles. While both analysis and synthesis follow the usual order of demonstration, only analysis seeks to discover its first principles; synthesis merely clarifies them. This interpretation has the virtue of explaining everything Descartes writes in the central Second Replies passage, including his references to the apriority/aposteriority distinction, and his claim that the *Meditations* employs *only* the method of analysis. Moreover, it helps illuminate his career-long interest (p. 88) in the foundations of knowledge. I have argued, further, that this interpretation explains why the *Regulae* and the *Meditations* are, notwithstanding their differences, both works of analysis; and why the *Discourse* and the *Principles* do, in varying degrees, incorporate elements of analysis.

References

Clarke, Desmond M. (1982), *Descartes' Philosophy of Science*. Manchester: Manchester University Press.

Cottingham, John (1988), *The Rationalists*. Oxford: Oxford University Press.

Cunning, David (2015), "Analysis versus Synthesis", in Lawrence Nolan (ed.), *The Cambridge Descartes Lexicon*. New York: Cambridge University Press, 7–12.

Curley, E. M. (1986), "Analysis in the *Meditations*: The Quest for Clear and Distinct Ideas", in Amélie Oksenberg Rorty (ed.), *Essays on Descartes' "Meditations"*. Berkeley: University of California Press, 153–76.

Garber, Daniel (1978), "Science and Certainty in Descartes", in Michael Hooker (ed.), *Descartes: Critical and Interpretive Essays*. Baltimore: Johns Hopkins University Press, 114–51.

Garber, Daniel, with Lesley Cohen (2001), "A Point of Order: Analysis, Synthesis, and Descartes' *Principles*", in Daniel Garber, *Descartes Embodied: Reading Cartesian Philosophy through Cartesian Science*. Cambridge: Cambridge University Press, 42–53.

Gaukroger, Stephen (1989), *Cartesian Logic: An Essay on Descartes's Conception of Inference*. Oxford: Clarendon Press.

Hintikka, Jaakko (1978), “A Discourse on Descartes’s Method”, in Michael Hooker (ed.), *Descartes: Critical and Interpretive Essays*. Baltimore: Johns Hopkins University Press, 74–88.

Hintikka, Jaakko, and Unto Remes (1974), *The Method of Analysis: Its Geometrical Origin and Its General Significance*. Dordrecht, Holland: D. Reidel Publishing.

Nelson, Alan (2018), “Logic and Knowledge”, in Dan Kaufman (ed.), *The Routledge Companion to Seventeenth Century Philosophy*. London and New York: Routledge, 224–48.

Newman, Lex, and Alan Nelson (1999), “Circumventing Cartesian Circles”, *Noûs* 33: 370–404.

Normore, Calvin (1993), “The Necessity in Deduction: Cartesian Inference and its Medieval Background”, *Synthese* 96: 437–54.

Owen, David (1999), *Hume’s Reason*. Oxford: Oxford University Press.

Schouls, Peter A. (1980), *The Imposition of Method: A Study of Descartes and Locke*. Oxford: Oxford University Press.

Timmermans, Benoît (1999), “The Originality of Descartes’s Conception of Analysis as Discovery”, *Journal of the History of Ideas* 60: 433–47.

Notes:

([1]) Gaukroger thus concludes that Descartes’s explanation of the distinction in terms of apriority and aposteriority “turns out to be utterly unhelpful” (Gaukroger 1989: 74). Curley adds, of Descartes’s explanation, that it “is likely only to confuse us”, leaving us to try to understand the distinction in some other way (Curley 1986: 154–5).

([2]) Cf. Gaukroger (1989), Hintikka (1978), Timmermans (1999).

([3]) Cf. Hintikka and Remes (1974).

([4]) For examples, see Nelson (2018: 230), Gaukroger (1989: 74), and Schouls (1980: 9–11).

([5]) For example, the Second Replies account (to be clarified in Section 1) stands in contrast to the Pappus-inspired account that Cottingham attributes to Descartes. On that latter account, the distinction does “boil down to nothing more than a contrast between moving [in synthesis] ‘downwards’ from axioms to a desired result and moving [in analysis] ‘upwards’ from a given proposition until we reach the axioms that generate it” (1988: 45).

([6]) Some interpretations entail that analysis, unlike synthesis, does not encompass demonstrative steps in the sense of deductive proofs wherein conclusions logically follow from premises. Cf. Cunning (2015: 9), Gaukroger (1989: 104–5), and Clarke (1982: 172).

Cunning rightly adds that this understanding leaves unanswered “how exactly an analytic demonstration is supposed to be structured” (2015: 9). Other interpretations have it the other way around. For instance, Hintikka (1978: 77–8) writes that Descartes “thinks of analysis as consisting of deductive inferences”; adding that the “idea of analysis as consisting of logical inferences is part and parcel of what Descartes means by saying that in the *Meditations* he employed analysis”.

([7]) In a letter to Morin (13 July 1638), Descartes writes: “there is a big difference between *proving* and *explaining*. I should add that the word ‘demonstrate’ can be used to signify either, if it is used according to common usage and not in the technical philosophical sense” (AT II.198/CSMK 106).

([8]) In SGE, Descartes characterizes the demonstration of Proposition II as a posteriori —“The existence of God can be demonstrated a posteriori merely from the fact that we have an idea of God within us” (AT VII.167/CSM II.118). In *Le monde*, Descartes describes a case of apriority: “those who are able to examine sufficiently the consequences of these truths and of our rules will be able to recognize effects by their causes. To express myself in scholastic terms, they will [be] able to have *a priori* demonstrations of everything that can be produced in this new world” (AT XI.47/CSM I.97).

([9]) Recall, he thinks of synthesis as being useful “as a follow-up to analysis”. And he has already run the relevant knowledge-producing analysis in the *Meditations*.

([10]) The four propositions demonstrated in SGE: Proposition I: “The existence of God can be known merely by considering his nature.” II: “The existence of God can be demonstrated a posteriori merely from the fact that we have an idea of God within us.” III: “God’s existence can also be demonstrated from the fact that we, who possess the idea of God, exist.” IV: “There is a real distinction between the mind and the body.” (AT VII.166–70/CSM II.117–20).

([11]) Section 2 develops Descartes’s methods of discovery.

([12]) As discussed in Section 2.1, Descartes rejects formal approaches to deduction, including Aristotelian syllogism. In the *Regulae*, he develops a non-formal approach to inference.

([13]) Characterizing such problems, Descartes writes: “First, in every problem there must be something unknown [*ignotum*]; otherwise there would be no point in posing the problem. Secondly, this unknown something must be delineated in some way, otherwise there would be nothing to point us to one line of investigation as opposed to any other. Thirdly, the unknown something can be delineated only by way of something else which is already known [*cognitum*]” (Rule 13, AT X.430/CSM I.51–2). Among the aims of the *Regulae* is to explain how one generates new lines of inference, absent syllogistic forms guiding the process.

([14]) Neglect of the fact that Descartes applies apriority and aposteriority at two different levels, explains much of what one finds in the scholarly literature—both in terms of frustration (see note 1 above), and the surprising positions attributed to him. For example, Cottingham (1988: 45) concludes that analysis is reasoning from causes to effects, and that synthesis is reasoning from effects to causes—an understandable conclusion, if one focuses on the level of the proofs themselves.

([15]) I take the spirit of this contrast (even if not its letter) to concern first principles broadly conceived, rather than narrowly, as in versions expressly citing "a long series of definitions, postulates, axioms, theorems and problems".

([16]) For instance, Descartes writes: "And when I said that the proposition *I am thinking, therefore I exist* is the first and most certain of all to occur to anyone who philosophizes in an orderly way, I did not in saying that deny that one must first know what thought, existence and certainty are, and that it is impossible that that which thinks should not exist, and so forth. But because these are very simple notions, and ones which on their own provide us with no knowledge of anything that exists, I did not think they needed to be listed" (*Principles* I.10, AT VIIIA.8/CSM I.196).

([17]) An implication of this explanation is that, in referring to the *cogito* as "the first principle" of his philosophy (*Discourse* 4, AT VI.32/CSM I.127), Descartes is using the term "principle" non-literally. See Curley (1986: 156) for related issues.

([18]) For examples, see Cunning (2015: 7) and Gaukroger (1989: 73).

([19]) In an open letter to Voetius (May 1643), and in a context of railing against the "philosophy which is taught in the schools and universities", Descartes writes (of the "standard texts and indexes and concordances"): "there is no chain of reasoning in such books, but everything is decided either by appeal to authority or by short summary syllogisms, and those who seek learning from these sources become accustomed to placing equal trust in the authority of any writer … For notice that the true use of reason, which is the basis of all education, all intelligence and all human wisdom, does not consist in isolated syllogisms, but only in the scrupulous and careful inclusion of everything required for knowledge of the truths we are seeking. This can almost never be expressed in syllogisms, unless many of them are linked together …" (AT VIIIB.42–3/CSMK 221–2).

([20]) See Normore (1993: 445) for a defense of this interpretation: "If one begins a deduction with 'true and known principles' … one reaches conclusions that are 'known with certainty'. If we suppose that by 'true and known principles' Descartes means principles of which we are certain, then this description is of a certainty-preserving process."

([21]) By contrast, some interpretations entail that the threefold process involves both analysis and synthesis (cf. note 4). Nelson (2018: 230) offers this clear rendering of such an account: "In the *Rules* the process of analysis begins with an object of study which is then broken into component natures. The results are further analyzed, resolved, or decomposed whereupon those results are again analyzed and so on. The process can stop

when we are satisfied that we have arrived at intuitions of simple natures. If, however, these simple natures are not ultimate principles, the process might continue until we arrive at one of those. Synthesis resembles this process in reverse; simple natures are recombined to arrive at a composite … Synthesis, therefore, is very closely related to deduction."

([22]) We may legitimately characterize the simplification phase as a kind of *analysis*, where the term is understood as a form of resolution, or decomposition. However, *this* notion of analysis is not the methodological notion Descartes explicates in the Second Replies.

([23]) Bear in mind that the *Regulae* account introduces new meanings to the terms *intuition* and *deduction*. "In case anyone should be troubled by my novel use of the term 'intuition' and of other terms to which I shall be forced to give a different meaning from their ordinary one, I wish to point out here that I am paying no attention to the way these terms have lately been used in the Schools" (Rule 3, AT X.369/CSM I.14).

([24]) See Owen (1999: ch. 2) for a more comprehensive discussion of this model of inference.

([25]) See Nelson (2018: 231–9) for a somewhat parallel account with which I largely agree, though his account is framed within his alternative understanding of the analysis/synthesis distinction.

([26]) A frustrating feature of the mature works is that Descartes often appears to invoke either notion—clarity or distinctness—as a shorthand for what this passage defines as the conjunction of clarity and distinctness. I am aware of no satisfying explanation of this. The present chapter sets the issue to the side, employing the term *distinctness* as it is defined here, as entailing a perception that is both clear and distinct.

([27]) See Garber (1978: 118–9) for a somewhat different view, whereby the noteworthy shift is from the *Regulae's* notion of intuition, to that of clarity and distinctness in the mature philosophy.

([28]) For example, consider these key moments in the text: "and here is the point, the perception I have of it [the wax] … can be imperfect and confused, as it was before, or clear and distinct as it is now" (AT VII.31/CSM II.21); and "it must be admitted that I now know myself even more distinctly" (AT VII.33/CSM II.22).

([29]) Cf. Rule 3 (AT X.370) and Rule 12 (AT X.420).

([30]) Elsewhere, Descartes offers this explanation of the shift: "For I saw that over and above perception, which is a prerequisite of judgement, we need affirmation and negation to determine the form of the judgement, and also that we are often free to withhold our assent, even if we perceive the matter in question. Hence I assigned the act of judging itself, which consists simply in assenting (i.e. in affirmation or denial) to the determination

of the will rather than to the perception of the intellect" (*Notes Against a Certain Broadsheet*, AT VIIIB.363/CSM I.307).

([31]) "If, however, I simply refrain from making a judgement in cases where I do not perceive the truth with sufficient clarity and distinctness, then it is clear that I am behaving correctly and avoiding error. But if in such cases I either affirm or deny, then I am not using my free will correctly. … In this incorrect use of free will may be found the privation which constitutes the essence of error" (*Meditation* IV, AT VII.59f/CSM II.41).

([32]) "The analytic style of writing that I adopted there [i.e. in the *Meditations*] allows us from time to time to make certain assumptions that have not yet been thoroughly examined; and this comes out in the First Meditation where I made many assumptions which I proceeded to refute in the subsequent Meditations" (Fourth Replies, AT VII.249/CSM II. 173).

([33]) Interpretations differ concerning whether knowledge of even the *cogito* (and other first truths) depends on God. See Newman and Nelson (1999) for discussion of alternative interpretations.

([34]) This is perhaps only words apart from the view of Garber and Cohen (2001), who conclude that the *Principles* is a work of neither analysis nor synthesis.

([35]) Clarke makes an even stronger claim, suggesting that *Discourse* 2 amounts to an "excerpted and rearranged" rendering of the rules from early parts of the *Regulae* (Clarke 1982: 181).

([36]) The existence of *particular* external objects is called into doubt, but only insofar as motivated by the dreaming argument.

([37]) Perhaps the strongest case for the contrary view—whereby *Discourse* 4, too, depends on theistic foundations—is that the account purports to link the truth rule to God: "what I took just now as a rule, namely that everything we conceive very clearly and very distinctly is true, is assured only for the reasons that God is or exists, that he is a perfect being, and that everything in us comes from him" (AT VI.38/CSM I.130). However, the context is very different. In the *Meditations*, the earlier *cogito*-based argument for the truth rule is suspended, by appeal to the evil genius doubt. Whereas in *Discourse* 4, the *cogito*-based argument for the truth rule is never questioned (there being no evil genius in play); rather than substituting for a suspended *cogito*-based argument (as occurs in the Third Meditation), the God-based argument of *Discourse* 4 serves to *reinforce* the *cogito*-based reasons for accepting the rule. More generally, the *Discourse* offers no systematic skepticism of our cognitive nature, unlike what one finds in the *Meditations*.

([38]) In the broader Second Replies passage discussing the analysis/synthesis distinction, Descartes adds—while referencing philosophers "who like to contradict just for the sake of it": "This is why I wrote 'Meditations' rather than 'Disputations', as the philosophers have done, or 'Theorems and Problems', as the geometers would have done. In so doing I wanted to make it clear that I would have nothing to do with anyone who was not willing

to join me in meditating and giving the subject attentive consideration" (AT VII.157/CSM II.111–12). As I read the passage, the point is not that the first-person, meditative style of the *Meditations* is an inherent feature of the method of analysis; but rather, that the meditative style is a *literary* method—as opposed to a method of demonstration—that happens to be characteristic of the *Meditations*.

([39]) Suggesting a different conclusion, it should be acknowledged that related issues arise in the conversation with Burman. Burman reports that Descartes told him that in the *Principles* the "procedure is synthetic" (AT V.153/CSMK 338).

Lex Newman

Department of Philosophy, University of Utah

Descartes’s Metaphysics

Lawrence Nolan

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Abstract and Keywords

This chapter defends the systematic nature of Descartes’s metaphysics by locating the source of many of his doctrines in one central, unifying principle. This principle, that the attributes of a substance are identical with the substance itself and with each other, underlies many of Descartes’s most important metaphysical doctrines. An appreciation of the principle resolves several interpretive puzzles pertaining to his metaphysics, provides Descartes with resources for answering objections, uncovers his reasons for holding doctrines that otherwise seem unmotivated, and reveals his commitment to views that he never explicitly affirms. It thus goes beyond the texts while also elucidating them in surprising ways.

Keywords: attribute, God, metaphysics, simplicity, substance

(p. 89) DESCARTES is known in part for his distinctive metaphysical claims—for example, that mind and body are really distinct substances, mind and body causally interact, the whole essence of mind is thought, and God creates and conserves all things, including the eternal truths. The scholarly literature devoted to these and other such doctrines is enormous, but little attention has been addressed to the question of what, if anything, ties them together. Is there a central principle that informs Descartes’s metaphysics and explains why he holds many of his signature doctrines? After all, Descartes is one of the early modern rationalists, who are reputed to be grand “system builders”. However, some commentators have expressed doubts, alleging that his metaphysics is merely a patchwork stitched from various remnants of scholastic philosophy to win support from traditional readers for his revolutionary physics.[1]

But while Descartes’s metaphysics is clearly in the service of his physics and some of his doctrines are adapted from scholasticism, it would be a mistake to conclude that it lacks cohesiveness or fails to express a unified vision. In fact, he believed the systematic nature of his metaphysics to be one of its chief attractions.

> My thoughts are so interconnected that I dare to hope that people will find my principles, once they have become familiar by frequent study and are considered all together, are as well proved by the consequences I derive from them as the borrowed nature of the moon’s light is proved by its waxing and waning. (Letter to Vatier, 22 February 1638, AT I.564/CSMK 88)

Descartes’s metaphysics is informed by a few basic principles, but one is particularly fertile and illuminating. Call it “the identity thesis”: the attributes of a substance are (p. 90) identical with the substance itself and with each other. This principle is expressed in different ways. In some contexts, Descartes expresses it by saying that a substance and its attributes are merely rationally distinct. In the case of God, he makes the same point by insisting upon God’s absolute simplicity. However it is formulated, this principle underlies many of Descartes’s most important metaphysical doctrines, and an appreciation of it resolves several interpretive puzzles, provides Descartes with resources for answering objections, uncovers his reasons for holding doctrines that otherwise seem unmotivated, and reveals his commitment to views that he never explicitly affirms, thus going beyond the texts while also elucidating them in surprising ways. I will provide textual evidence for the identity thesis as we proceed, but perhaps the best evidence for it derives from the explanatory work it does with respect to Descartes’s metaphysics.

1. God or Infinite Substance

The foundation of Cartesian metaphysics is God, who as the sole infinite substance and creator of all things is first in the “order of being”. Descartes’s conception of God borrows much from the medieval Christian tradition, but is also novel and controversial in several ways. For example, he claims both that God created the eternal truths and that God is the cause of himself in a positive sense. These doctrines are often thought to be incoherent and unmotivated. However, the thesis that the divine attributes are identical with God and with each other explains why Descartes holds these and other unorthodox views, and reveals them to be more coherent and consistent with his other commitments than they might seem.

But we begin with Descartes the traditionalist, who hews to philosophical orthodoxy in the attributes he assigns to God. His is not the God of the ordinary religious believer, who reveres divine mercy, justice, and love, but the “God of the philosophers”, a concept that stresses supreme perfection and infinity.[2] In the Third Meditation, Descartes presents two lists of divine attributes; combining them, God is eternal, infinite, immutable, independent, omniscient, omnipotent, and the creator of all things.[3] Some of these play starring roles in Descartes’s philosophy. For instance, actual infinity is crucial to his first causal argument for God’s existence, while immutability serves a seminal part in demonstrating the laws of nature. Other divine attributes such as omnibenevolence and necessary existence, introduced elsewhere, play important roles in his epistemic project and in his ontological argument for God’s existence, respectively. And Descartes appeals to divine in-

comprehensibility to mitigate the tension between human freedom (which he takes as a datum) and divine preordination.[4]

(p. 91) However, with respect to Cartesian metaphysics, the most important divine attribute is simplicity or unity. Descartes stresses this perfection in multiple passages, including one from the Third Meditation, where he speaks of "The unity, the simplicity, or the inseparability of all the attributes of God" (AT VII.50/CSM II.34). The general idea that being is simple has a long pedigree in philosophy, dating back to the ancient Greeks. Medieval Christians were drawn to divine simplicity as a way of securing God's ontological independence or "aseity", the notion that God has being "from himself" (*a se esse*). If God were composite rather than simple, he would depend on his constituent parts, whether they be spatial, metaphysical (e.g. having diverse properties), or otherwise. Simplicity has further consequences for the divine nature, ones that many medieval philosophers and Descartes both accept. For example, it entails that God does not have a body, for as a simple being he lacks spatial parts, and that he is incorruptible, since corruption results from the decomposition of parts. Simplicity also entails that God lacks temporal parts, that his duration is nonsuccessive, and thus (following Augustine) that he exists in the eternal present.[5]

Despite this agreement with his medieval predecessors, Descartes understands the doctrine of divine simplicity more strictly and draws profound consequences for the nature of God's creation of the universe that no one else had. It is here that his conception of God deviates most from orthodoxy. To appreciate the revolutionary character of Descartes's approach, consider briefly the traditional account of creation. In the Middle Ages, it became standard for Christian philosophers, inspired by Neoplatonism, to explain creation in terms of so-called exemplary causation. By contemplating himself, God engenders ideas of creaturely essences, which bear a likeness to the divine nature. In creating the world, God chooses among these ideas, which exist in his intellect logically prior to his will. He does not create these ideas through his efficient causality, but they constrain the range of things that he can so create and thus constitute the realm of what is possible.

From the standpoint of Christian philosophy, the main problem with this account of creation is that it violates God's simplicity in two ways: first, by positing a plurality of discrete ideas in the divine intellect and, second, by supposing that God's intellect is prior to —and thus distinct from—his will. Scholastic thinkers tried to resolve the first inconsistency by proposing that divine ideas 1) are identical with the divine nature and 2) have a non-real mode of existence.[6] The second inconsistency cannot be dispatched so easily, however, which is why Descartes rejects the traditional account of creation. This rejection is implicit in most of his formulations of the doctrine of divine simplicity, where he focuses exclusively on the relation between God's intellect and will (or between God's knowing/understanding and willing/creating). Descartes holds that all of the divine attributes are numerically identical, but he stresses these two in particular since they constitute the lynchpin of his debate with his predecessors.

(p. 92)

> In God willing and knowing are a single thing in such a way that <by the very fact of willing something he knows it and it is only for this reason that such a thing is true>. (Letter to Mersenne, 6 May 1630, AT I.149/CSMK 24; angle brackets indicate Descartes's use of Latin in a French context)[7]

By identifying God's intellect and will, Descartes is rejecting the traditional account of creation and proposing an alternative. This passage, from his early correspondence, appears in a larger series of letters in which Descartes introduces his notorious doctrine that essences, and the eternal truths concerning them, are created. This is important because these passages reveal the underlying philosophical motivation for this creation doctrine. Many scholars have puzzled over what possessed Descartes to hold this doctrine, especially given its novelty and the absurdity of its alleged consequences (discussed below). The standard view is that Descartes believed that God's omnipotence requires it.[8] But, in fact, Descartes derives his creation doctrine from God's absolute simplicity.[9] He draws an explicit connection between these two doctrines in another passage in this same series of letters. Just before affirming God's simplicity once again, he writes:

> You ask me <by what kind of causality God established the eternal truths>. I reply: <by the same kind of causality> that he created all things, that is to say, as their <efficient and total cause>. *For it is certain that he is the author of the essence of created things no less than of their existence; and this essence is nothing other than the eternal truths* … In God, willing, understanding and creating are all the same thing … (AT I.151–3/CSMK 25–6; emphasis added)

According to tradition, God is not the efficient cause of the essences of created things. Rather, when he creates the universe, he merely actualizes essences that subsist in his understanding prior to his creative activity. By contrast, Descartes insists here that God is the total and efficient cause of both the existence of things *and* their essences, which he identifies in this passage with the eternal truths. Since divine intellect and will are the same, there are no essences prior to God's will. One significant advantage that Descartes can claim for his account is that it vindicates the religious dogma that God creates the universe *ex nihilo*. He does not create from pre-subsisting essences residing in his intellect but literally "from nothing".

Another consequence of Descartes's strict understanding of divine simplicity is that God's will is completely indifferent, in a special sense of that term. It was a truism among medieval philosophers to say that God's will cannot be constrained by anything *outside* (p. 93) him, given his independence. Descartes's innovation is to claim that nothing *within* God's own nature, including his intellect, can determine his will either.

> It is self-contradictory to suppose that the will of God was not indifferent [*indifferentem*] from eternity with respect to everything which has happened or will ever happen; for it is impossible to imagine that anything is thought of in the divine intellect as good or true … prior to the decision of the divine will to make it so. (Sixth Replies, AT VII.431–2/CSM II.291)[10]

Since God's intellect and will are the same, there is no truth or good prior to his will. Descartes is taking an implicit stand on one version of Plato's dilemma from the *Euthyphro*: are the eternal truths true or good because God willed them or did he will them because they are true or good? He clearly endorses the former. So God's will is indifferent in the sense that absolutely nothing determines it or defines the parameters of what he can create.[11] Traditionally, Christian philosophers held that God is indifferent about *whether* he creates the world; Descartes adds that God is indifferent about *what* he creates. It might be thought that Descartes has an easier time than his predecessors in explaining the contingency of the world, since God is not constrained by anything to create it, including his own benevolence.

Yet another consequence of divine simplicity is that God has no purposes in creation or, to put it in terms of scholastic Aristotelianism, there are no final causes. As the passage just cited indicates, God did not create the eternal truths because he saw that they were true or good. Given the indifference of his will, he had no reasons whatsoever for creating the truths or substances that he did.[12] As an interpretive claim, this is significant both because it pushes Descartes closer to Spinoza (who repudiates divine teleology) and because it reveals that Descartes understates the strength of his position in his published writings, where he countenances divine purposes but declares them to be inscrutable. For example, in the Fourth Meditation, he says that we cannot penetrate God's ends given his "immense, incomprehensible, and infinite" nature.[13] However, for political reasons, he is sometimes circumspect in rejecting scholastic doctrines. For example, even though he finds the scholastic notion of real accidents to involve a contradiction, he studiously avoids denying their existence.[14] Here, then, in the case of final (p. 94) causes, is an instance where one must appreciate the systematic character of Descartes's metaphysics to grasp one of his positions. The texts alone are misleading.

Let us return to Descartes's doctrine that the eternal truths are created, which raises questions about 1) the ontological status of eternal truths and 2) its consequences for the metaphysics of modality, among others.[15] I shall treat each of these in turn, showing how considerations of divine simplicity settle the first debate and narrow the range of viable interpretations for the second.

Since Descartes identifies essences and eternal truths, any claim that he makes about the ontological status of one is also a claim about the other. He appears to provide a clue to his views on this topic in the Fifth Meditation, where he asserts that a triangle—even if it does not exist and has never existed anywhere outside our thought—has an "immutable and eternal" nature, essence, or form that "is not invented by me or dependent on my mind" (AT VII.64/CSM II.45). Some scholars read this as a commitment to a version of Platonic realism: the essences of things have merely possible being in a third realm, distinct from God and distinct from created substances.[16] Other scholars, impressed by Descartes's remark that these essences are "immutable and eternal", have opted for what I call "Theological Platonism": essences reside in God either as divine decrees or as the objective being of divine ideas.[17] However, in the *Principles of Philosophy*, Descartes endorses a conceptualist, anti-Platonic account of the ontological status of essences and

eternal truths. He says there that eternal truths "have a seat within our mind" and that mathematical essences and other universals are merely ideas in finite minds or ways of thinking (*modi cogitandi*) about actually existing substances (AT VIIIA.23, 27/CSM I.209, 212).[18]

There are strong prima facie reasons for treating the text of the *Principles* as authoritative in this debate and reinterpreting the Fifth Meditation in light of it, but systematic considerations of divine simplicity are decisive. The Platonic reading of the Fifth Meditation violates Descartes's claim that essences and eternal truths are created and thus depend on God's will—again, a claim that follows from the doctrine of divine simplicity. Theological Platonism is precluded by this same doctrine more directly. A plurality of discrete decrees in God would abrogate his simplicity. Descartes confirms this in the *Conversation with Burman*, where he reportedly tells his interviewer that God's "decrees are identical with himself" (AT V.154/CSMK 339). Burman also reports him as saying, "Whatever is in God is not in reality separate from God himself; rather it is identical with God himself (*imo est ipse Deus*)" (AT V.166/CSMK 348). For the same reason, there cannot be a diversity of ideas or objective beings in God's intellect either. Medieval philosophers countenanced divine ideas, and hence prioritized God's intellect over his (p. 95) will, because they were willing to accept a weaker notion of divine simplicity. Descartes, by contrast, is uncompromising.[19]

I turn now to the most controversial aspect of the creation doctrine, viz., its putative consequences for Descartes's theory of possibility and necessity. Critics charge the doctrine with incoherence for it seems to entail universal possibilism—the position that everything is possible, including what is logically *im*possible.[20] Hence there are no absolutely necessary truths. Seeming to encourage this reading, Descartes sometimes suggests that God could have made the eternal truths other than they are, and even that he could have made contradictories true together. For example, he appears to say that God could have made it false that the three angles of a triangle are equal to two right angles.[21] However, one must be very careful in parsing the modal expression "could" here. Some commentators have rightly noted that a strong modal reading of "could have done otherwise" requires supposing that there are unactualized possibles in his intellect.[22] This recalls the traditional theory of exemplary causation as well as Leibniz's claim that God's intellect contains an infinite number of possible worlds. Such accounts are foreclosed to Descartes, given his view that God's intellect and will are the same, which entails that there are no possibilities prior to creation. One might even say that Descartes's God makes finite substances possible by making them actual. Absolutely everything depends on God's will, including possibility. These results show Descartes is not a universal possibilist. The doctrine of simplicity may not indicate which positive theory of modality he held, if he held one at all, but it circumscribes quite narrowly the range of theories available to him.[23]

Another doctrine alleged to be incoherent is Descartes's claim in the Third Meditation that God is the cause of himself (*causa sui*) (AT VII.49–50/CSM II.34). The assertion that something derives its existence "from itself" (*a se*) was traditionally understood negative-

ly, as meaning "not from another" (First Objections, AT VII.95/CSM II.68). However, Descartes insists on a stronger, positive sense; but God could be his own efficient cause only if he were distinct from himself, which Descartes grants is absurd (Fourth Replies, AT VII.240/CSM II.167). After many pages of convoluted discussion, in replies to two separate objectors to the *Meditations*, it becomes clear that Descartes means only to say that God is his own formal cause, where "formal" refers to the divine essence and the term "cause" is understood broadly to mean "cause or reason" (*causa sive ratio*). God's essence provides the *reason* that he exists and needs no efficient cause (Fourth Replies, AT VII.236/CSM II.165). So Descartes's position is coherent after all, but questions remain as to why, in the words of one commentator, he "twisted himself in knots" (p. 96) to explain the sense in which God is *causa sui*.[24] It is not enough to say that his second causal argument for God's existence depends on the premise that something can be self-caused in a positive sense; though true, that alone would not explain why he engages in such scholastic subtlety. The doctrine of divine simplicity reveals a more plausible explanation. To say that God's intellect and will are the same means that anything God knows he wills, and vice versa. So if God knows himself then it would seem to follow that he also creates himself. I suspect that Descartes realized that his strict understanding of divine simplicity commits him to this conclusion. Thus, the goal of his overwrought discussion is to finesse this commitment in a way that avoids absurdity. It is an open question whether he is entitled to the solution of which he avails himself.

Finally, the identity of God's intellect and will explains why Descartes endorses the Augustinian doctrine that evil is a privation. If evil were something positive rather than a lack of being then, given his omniscience, God would know it. But in that case, since whatever he knows he wills, God would be causally responsible for evil. Descartes could not say, as many Christian philosophers do, that God merely permits evil. Descartes clearly sees a link between divine simplicity and Augustine's theodicy, for immediately after affirming in the *Principles* that there is one simple act by which God "simultaneously understands, wills and accomplishes everything", he adds: "When I say 'everything' I mean all *things*: for God does not will the evil of sin, which is not a thing" (I.23, AT VIIIA.14/CSM I. 201).

2. The Created Universe

The hallmark of Descartes's ontology is its economy: besides God, there are only two kinds of created substance, minds and bodies, whose essences are thought and extension, respectively. And, as with his conception of God, Descartes conceives of thinking substances and extended substances in austere terms. For one thing, he recognizes only two kinds of affection of finite substances, attributes and modes. Attributes include the essence or "principal attribute" as well as three "generic" attributes—viz., existence, duration, and number (or unity). Modes are more diverse. Examples in the case of thinking substance include any occurrent thought or act of volition, such as the thought of God or affirming a clear and distinct perception. Examples of modes of corporeal substance include determinate size, shape, motion, and position. Descartes sometimes characterizes

the difference between attributes and modes loosely: attributes are general, constant properties, while modes are variable instances of them. So, for instance, shape in general is an attribute of a body, while its determinate shape (e.g. spherical) at a given moment constitutes one of its modes.

However, when speaking more strictly, Descartes makes clear that attributes are not really affections of substances, as that would require that they be ontologically distinct (p. 97) from them. As in the case of God, there is an identity relation between a created substance and its attributes. When setting forth his theory of distinction in the *Principles*, he asserts that any substance, whether created or divine, is merely rationally distinct from each of its attributes, and that any two attributes of a single substance are also merely rationally distinct (I.62, AT VIIIA.30/CSM I.214).[25] The notion of a distinction of reason (*distinctio rationis*), or what is often translated as a "conceptual distinction", is unique among the three types of distinction that Descartes recognizes. Unlike real and modal distinctions, which obtain *in* things (*in re*), a rational distinction is confined to our thought and, rather than being discovered, is produced by the mind (i.e. *ratione*) when we regard the same thing in different abstract ways. As Descartes explains in describing the rational distinction between essence and existence: "we … understand the essence of a thing in one way when we consider it in abstraction from whether it exists or not, and in a different way when we consider it as existing …" (Letter to an unknown correspondent, 1645 or 1646, AT IV.349/CSMK 280). In drawing such distinctions in our thought, one must be careful not to judge that they also obtain in things, for Descartes insists that a substance's attributes are "in no way distinct" outside the mind (AT IV.350/CSMK 280).

In the case of created beings, the most important examples of rational distinctions are the ones we draw between a substance and its principal attribute. Just after introducing the notion of a distinction of reason in the *Principles*, Descartes writes: "Thought and extension can be regarded as constituting the natures of intelligent substance and corporeal substance; they must then be considered as nothing else but thinking substance itself and extended substance itself—that is, as mind and body" (I.63, AT VIIIA.30–1/CSM I.215). Here is as clear a statement of the identity thesis as one can find in his corpus. A corporeal substance just is *its* extension and a thinking substance just is *its* thought.[26] The identity thesis also holds between a substance and each of its generic attributes, listed above. So to say that a substance and one of its attributes are merely rationally distinct means that they are identical in reality and distinguished only within our thought or reason.[27]

Now, if a substance is identical with each of its attributes, how can thought or extension qualify as *principal*? The answer is that the notion of a principal attribute is epistemic rather than metaphysical: it is that attribute through which the modes of a substance are (p. 98) conceived or understood. Descartes says, for example, that shape is unintelligible except as the mode of an extended substance (*Principles of Philosophy* I.53, AT VIIIA.25/CSM I.210). As an immutable being, God lacks modes and thus also lacks a principal attribute (*Principles of Philosophy* I.56, AT VIIIA.26/CSM I.211).

We are now prepared to appreciate some of the many roles the identity thesis plays in Descartes's account of created substances. For one thing, it explains several aspects of his radically new, anti-Aristotelian conception of corporeal substance as pure extension. Given space constraints, I mention only a few here. First, by identifying a body with its extension, Descartes collapses the Aristotelian distinction between matter and form. Second, the same identity entails that a vacuum, or a region of extension devoid of corporeal substance, is impossible (*Principles* II.16, AT VIIIA.49/CSM I.229–30). Third, since a body just is its extension, and extension and divisibility are merely rationally distinct, atoms are impossible (*Principles* II.20, AT VIIIA.51–2/CSM I.231–2). All bodies, no matter how small, are divisible by their very nature. Fourth, as bare extension, matter is inert, and so any motion in the universe must be imposed upon it, which explains why Descartes maintains that God is the source of motion (*Principles* II.36, AT VIIIA.61/CSM I.240). Applications of the identity thesis to Descartes's thinking substance are fewer in number but no less illuminating. In the Second Meditation, the meditator discovers that she is unable to doubt that she exists and is a thinking thing. The metaphysical grounds for these cognitive discoveries are the identities that hold between one's mind and the attribute of existence on the one hand, and one's mind and the attribute of thought on the other. To doubt that one exists or that one is a thinking thing is, in effect, to deny these identities, which are reflected in our clear and distinct perceptions.

2.1. Descartes's General Concept of Substance

The identity thesis elucidates an important epistemic principle whose metaphysical basis is often misunderstood. Descartes asserts in the *Principles* that substances are known through their attributes (I.52, AT VIIIA.25/CSM II.210). He uses the term "attributes" broadly here to include modes. Even so, since modes are conceived through the principal attribute of a substance, all substances are known primarily through their attributes in the strict sense (I.53, AT VIIIA.25/CSM II.210). The identity thesis explains why this is: a substance is known through its principal attribute because it *just is* that attribute. This result is important because some commentators mistakenly conclude from Descartes's epistemic principle that he is committed to substrata or bare particulars: substances cannot be known in themselves because they are characterless; they are instead logical posits from our perception of their attributes, based on the principle "nothing has no attributes", which Descartes affirms in this context.[28] But since a substance is identical with its essence and with each of its other attributes, it cannot be a substratum. Descartes says elsewhere in the *Principles* that philosophers who distinguish a corporeal (p. 99) substance from its extension or quantity (and thus conceive of it as a substratum) "do not understand anything by the term 'substance' or have a confused idea of incorporeal substance, which they falsely attach to corporeal substance …" (II.9, AT VIIIA.45/CSM II. 226–7).

An appreciation of Descartes's epistemic principle, coupled with the identity thesis, resolves another debate about his conception of substance. Critics complain that he articulates two incompatible definitions of substance. In the *Principles*, he defines substance in terms of independent existence (I.51, AT VIIIA.24/CSM II.210), whereas in the Second

Replies, he defines substance as that "in which whatever we perceive immediately resides, as in a subject, or to every thing by means of which whatever we perceive exists" (Definition 5, AT VII.161/CSM II.114). The latter definition has been thought to reflect the scholastic conception of substance as an ultimate subject; properties "exist in" (*inesse*) substances but the latter do not inhere in anything else.[29]

Rather than trying to reconcile these two definitions, there are compelling reasons for favoring the first and dismissing the second, or at least reinterpreting it as something other than a definition. First, Descartes points out elsewhere that although philosophers sometimes speak of body as a "subject" of extension or say that it "possesses extension", this is a mistake. Saying that a body is extended is equivalent to saying that extension is extension, a useless tautology (*Rules for the Direction of the Mind*, AT X.443–4/CSM I.60). These remarks reinforce the point made above that a substance (e.g. a body) is merely rationally distinct from its essence (e.g. extension). In general, a substance cannot be a subject of its attributes since it is merely rationally distinct from them. Second, the definition in terms of independent existence plays an important role in Descartes's proof of real distinction between mind and body, whereas the second putative definition plays no role in his philosophy. The latter appears in the context of the Geometrical Exposition, which Descartes wrote begrudgingly to comply with the request of the Second Set of Objectors to recapitulate the reasoning of the *Meditations* in geometrical fashion. Much of what he presses into definitions, postulates, and axioms are not really propositions of those types.[30] Third, unlike the definition in terms of independent existence, the statement from the Geometrical Exposition does not apply to God, even though it is presented as a *general* definition. As an absolutely simple substance, God is clearly *not* the subject of his attributes. Fourth, even if we restrict ourselves to the relation between finite substances and their modes, the latter do not exist in minds and bodies as subjects. Descartes chose the Latin term *modus* because he conceives of modes as "ways of being" an extended or thinking substance, which is to say that modes bear a much stronger relation to their substances than inherence.[31]

(p. 100) Given these considerations, I suggest that rather than advancing a genuine definition of substance in the Geometrical Exposition, Descartes sees himself as reframing his epistemic principle that a substance is known through its attributes. There is no denying that he labels it a definition and, as a sop to the scholastics, deliberately makes it sound like the traditional definition of substance as the ultimate bearer of properties. However, in the same passage, he writes: "The only idea we have of a substance … is that it is a thing in which whatever we perceive … exists." What we perceive, he tells us, is some "property, quality, or attribute" (AT VII.161/CSM II.114). He then goes on to cite the principle quoted from *Principles* I.52 above that nothing has no attributes, which is offered there in explanation for why a substance is known through its attributes: there is nothing more to a substance than its attributes. The quotation from the Geometrical Exposition also jibes with *Principles* I.63, where Descartes says it is easier to form a clear and distinct conception of thinking substance and extended substance than of substance in general, for "we have some difficulty in abstracting the notion of substance from the notions of thought and extension, which are distinct merely by means of reason [*ratione*]" (AT VIIIA.

31/CSM II.215). The notion of substance in general is a bare abstraction and thus difficult to conceive of on its own. What is clear and distinct in the first instance is thinking substance and extended substance. Re-quoting the Geometrical Exposition, this is "the only idea we have of substance".[32]

2.2. Descartes's Theory of Time

Descartes's discussions of time are lamentably few and brief, but we can infer some important consequences for his views on this topic from his claim that every substance is merely rationally distinct from its duration. The most important consequence is that time is not a thing, i.e. not something distinct from substances that are said to be "in time". Consider the analogy with Cartesian space: since the whole essence of corporeal substance is extension or spatial dimension, space is not something distinct from the bodies that are said "to occupy" it. So God does not create time as such; rather, he creates individual substances, each of which is merely rationally distinct from its duration, as God is from his own.

Descartes uses the term "time" ambiguously. In some contexts, such as the one just discussed, he uses it as a synonym for a given substance's duration or continued existence. But in other contexts, he distinguishes time both from the duration of particular substances and from duration in general.

> [S]ome attributes or modes are in the very things of which they are said to be attributes or modes, while others are only in our thought. For example, when time is distinguished from duration taken in the general sense and called the measure of movement [*numerum motus*], it is simply a mode of thought [*modus cogitandi*]. (*Principles* I.57, AT VIIIA.26–7/CSM I.212)

(p. 101) Here Descartes uses the expression "mode of thought" to mean not a mode in the strict sense, but *a way of thinking*, a phrase he often uses in the context of characterizing a rational distinction. As noted above, one produces a rational distinction by thinking of a substance in different abstract ways. For example, one abstracts when selecting attending to a substance's duration, while ignoring its other attributes. That is one level of abstraction. But another "way of thinking", involving a higher-level abstraction, is to think of duration in general. This is not the duration of any particular substance but *universal* duration. Like all universals for Descartes, including mathematical objects, duration in general is merely an idea existing in our mind, as he notes in the next two articles of the *Principles* (I.58–9, AT VIIIA.27–8/CSM II.212–13). He treats time as a way of thinking about duration in general: time is the measure of movement. Continuing this passage, he writes:

> [I]n order to measure the duration of all things, we compare their duration with the duration of the greatest and most regular motions which give rise to years and days, and we call this duration "time." Yet nothing is thereby added to duration,

> taken in the general sense, except for a mode of thought. (AT VIIIA.27/CSM I. 212)

So time, in this sense, is a further abstraction from duration in general. Because of the regularity of the motions of heavenly bodies, like the rotation of the earth around the sun, we treat their durations as the standard by which to measure the duration of all things, and call this standard "time".[33] In this sense too, then, time is not one of God's creations.

Most scholarly attention on Descartes's theory of time has focused on the issue of whether it is continuous or discontinuous. While formulating the second causal argument for God's existence in the Third Meditation, Descartes writes:

> [A] lifespan can be divided into countless parts, each completely independent of the others, so that it does not follow from the fact that I existed a little while ago that I must exist now, unless there is some cause which as it were creates me afresh at this moment—that is, which preserves me. For it is quite clear to anyone who attentively considers the nature of time that the same power and action are needed to preserve anything at each individual moment of its duration as would be required to create that thing anew if it were not yet in existence. Hence the distinction between preservation and creation is only a conceptual one … (AT VII. 48–9/CSM II.33)

As is clear from the context, Descartes uses the term "time" here to refer to the concrete duration of a particular substance, viz., the meditator. Traditionally, this passage has been thought to commit Descartes to the discontinuity of time and even to the view that time consists of indivisible parts or atoms.[34] On its face, this commitment would be surprising given the analogy with material extension, which for Descartes is *continuous* (p. 102) and *indefinitely divisible*.[35] The identity thesis shows decisively that this interpretation is mistaken. We know from earlier discussions of divine simplicity that Descartes's God does everything, including creating and preserving the universe, by one simple and eternal act.[36] This means that God's conservation of the universe is not a *re*-creation, as some Christian philosophers like Malebranche understand the traditional doctrine of continual creation. But such an account is needed to support the claim that Cartesian time is discontinuous. As one commentator has noted, conservation is best understood as the preservation of something that already exists, not its "repeated reproduction". Thus, "if God's creation or production is continuous [in this sense], then the duration of each created thing must likewise be continuous".[37]

If a substance and its duration are merely rationally distinct, there also cannot be alternating periods of existence and nonexistence, as would be required if time were discontinuous and God re-created substances over time.[38] Duration exists if and only if substances exist.[39] As Descartes tells his correspondent Henry More, "I think it involves a contradiction to conceive of any duration intervening between the destruction of an earlier world and the creation of a new one" (15 April 1649, AT V.343/CSMK 373).

2.3. The Problem of Individuation

The individuation of created substances poses one of the most profound and intractable difficulties for Descartes's metaphysics. If all bodies have the same essence then what distinguishes one extended substance from another? Likewise, if all minds have thought as their essence then in virtue of what do they constitute distinct individuals? The source of the difficulty is not just that bodies, or minds, share an essence. It is because he thinks that a substance on the one hand, and its attributes and modes on the other hand, bear such an intimate relation to each other that the problem seems insoluble. Ironically, this is a place where Descartes's austere conception of substance comes back to haunt him. The scholastics had greater resources for explaining individuation precisely because they conceived of finite substances as composite in nature. As a result, they could appeal to one of a substance's unique component parts to account for what individuates it. The composition of matter and form was often most salient here, with scholastics such as Aquinas appealing to (signate) matter to explain individuation. But, in the case of corporeal substances, Descartes reduces the form of a body (i.e. extension) to its matter. So while the identity thesis resolves several problems in his metaphysics, it also introduces at least one major difficulty. This is not the only difficulty. There are special problems involved in trying to individuate Cartesian bodies that have led some scholars to hold that there is only one corporeal substance.[40] If correct, this would mark an important (p. 103) asymmetry with thinking substances, as Descartes is clearly committed to their plurality on theological grounds.[41]

I would like to sketch a solution to the problem of individuation that is suggested by the identity thesis itself. It applies at minimum to thinking substances, if not extended ones given the special problems just mentioned. Notice that the modes of a substance—at least of the same type—are individuated temporally. For example, what distinguishes two separate thoughts about one's own existence is that one occurs at a later time than another. Now consider a substance at a given moment. In that moment, a substance and its modes are numerically identical since a mode just is a way being an extended or thinking thing.[42] This is the first step in understanding how Descartes might individuate created substances, involving a clear application of the identity thesis but applied in this case to a substance and its modes rather than its attributes. There is no problem in speaking of "moments", as Descartes does in the passage cited above, so long as one does not regard them as durationless instants, which are just as ideal as extensionless points are in Cartesian space. Moments, however brief, have some temporal extension.

Now consider a substance over the course of its entire existence (or *sub specie aeternitatis*). Given the first step above, it seems to follow that a substance consists in nothing more than the totality of its modes over its "life span". Those modes will be highly varied and indefinite in number. One sees this most clearly in the case of thinking substances, since, given the doctrine of the soul's immortality, their existence is indefinitely extended into the future. What the totality of a substance's modes provides is an individual essence, exactly what is needed to individuate that substance. The main objection to this proposal is that it seems to violate Descartes's account of the relation between a sub-

stance and its modes, which Spinoza later expresses in the *Ethics* by saying that "substance is prior in nature to its affections" (Part I, Proposition 1). Modes depend for their existence on their substances, but substances do not likewise depend on their modes (*Principles* I.61, AT VIIIA.29/CSM I.213–14). However, Descartes never asserts that a substance could exist without *any* modes. Cartesian attributes are often characterized as determinable properties. If correct, then it is difficult to see how they can be anything other than mere abstractions without their modal determinates. To say that there is an asymmetrical relation of dependence between an individual substance and its modes might mean only that no single mode constitutes the whole essence of that substance. When stressing the asymmetry, Descartes always focuses on the relation between a substance and *one* of its modes. It is consistent with this claim that a substance is identical with the sum of its modes over the whole of its temporal existence, which again solves the problem of individuation in a way that no other proposal promises.

References

Adams, Marilyn McCord (1987), *William of Ockham*. Notre Dame: University of Notre Dame Press.

Arthur, Richard (1988), "Continuous Creation, Continuous Time: A Refutation of the Alleged Discontinuity of Cartesian Time", *Journal of the History of Philosophy* 26: 349–75.

Bennett, Jonathan (1994), "Descartes's Theory of Modality", *Philosophical Review* 103: 639–67.

Chappell, Vere (1997), "Descartes's Ontology", *Topoi* 16: 111–27.

Cottingham, John (2008), *Cartesian Reflections*. Oxford: Oxford University Press.

Curley, Edwin (1988), *Behind the Geometrical Method: A Reading of Spinoza's Ethics*. Princeton: Princeton University Press.

Frankfurt, Harry (1977), "Descartes on the Creation of the Eternal Truths", *Philosophical Review* 86: 36–57.

Garber, Daniel (1983), "Mind, Body, and the Laws of Nature in Descartes and Leibniz", *Midwest Studies in Philosophy* 8: 105–33.

Geach, Peter (1973), "Omnipotence", *Philosophy* 48: 7–20.

Gueroult, Martial (1984), *Descartes' Philosophy Interpreted According to the Order of Reasons*, trans. Roger Ariew, 2 vols. Minneapolis: University of Minnesota Press.

Hoffman, Paul (2002), "Descartes's Theory of Distinction", *Philosophy and Phenomenological Research* 64: 57–78.

Kemp Smith, Norman (1902), *Studies in the Cartesian Philosophy*. New York: Macmillan.

Kenny, Anthony (1968), *Descartes: A Study of His Philosophy*. New York: Random House.

Kenny, Anthony (1970), "The Cartesian Circle and the Eternal Truths", *Journal of Philosophy* 67: 685–700.

Lennon, Thomas (1998), "The Cartesian Dialectic of Creation", in Daniel Garber and Michael Ayers (eds.), *The Cambridge History of Seventeenth-Century Philosophy*, 2 vols. Cambridge: Cambridge University Press, vol. 1, 331–62.

Lennon, Thomas (2007), "The Eleatic Descartes", *Journal of the History of Philosophy* 45: 29–47.

Nelson, Alan (2013), "Conceptual Distinctions and the Concept of Substance in Descartes", *ProtoSociology* 30: 192–205.

Nelson, Alan, and David Cunning (1999), "Cognition and Modality in Descartes", *Acta Philosophica Fennica* 64: 137–53.

Nolan, Lawrence (1997), "The Ontological Status of Cartesian Natures", *Pacific Philosophical Quarterly* 78: 169–94.

Nolan, Lawrence (1998), "Descartes's Theory of Universals", *Philosophical Studies* 89: 161–80.

Nolan, Lawrence (2017), "Descartes on Universal Essences and Divine Knowledge", in Stefano Di Bella and Tad. M. Schmaltz (eds.), *The Problem of Universals in Early Modern Philosophy*. Oxford: Oxford University Press, 87–116.

Rozemond, Marleen (2008), "Descartes' Ontology of the Eternal Truths", in P. Hoffman, D. Owen, and G. Yaffe (eds.), *Contemporary Perspectives on Early Modern Philosophy: Essays in Honor of Vere Chappell*. London: Broadview Press, 41–63.

Schmaltz, Tad M. (1991), "Platonism and Descartes' View of Immutable Essences", *Archiv für Geschichte der Philosophie* 73: 129–70.

Schmaltz, Tad M. (2011), "*Causa Sui* and Created Truth in Descartes", in John F. Wippel (ed.), *The Ultimate Why Question*. Washington, DC: The Catholic University of America Press, 109–24.

(p. 105) Sowaal, Alice (2004), "Cartesian Bodies", *Canadian Journal of Philosophy* 34: 217–40.

Walski, Gregory (2003), "The Cartesian God and the Eternal Truths", in Daniel Garber and Steven Nadler (eds.), *Oxford Studies in Early Modern Philosophy*. Oxford: Clarendon Press, vol. I, 23–44.

Wilson, Margaret D. (1978), *Descartes*. London: Routledge.

Notes:

(*) I am grateful to Nicholas Jolley, Alan Nelson, and Al Spangler for comments on previous drafts of this chapter.

(1) See, for example, John Cottingham (2008: ch. 2).

(2) Descartes does mention divine justice and mercy in a letter to an unknown correspondent, 1645 or 1646, AT IV.349/CSMK 280.

(3) AT VII.40, 45/CSM II.28, 31.

(4) AT VIIIA.20/CSM I.206. Cf. the Letter to Princess Elisabeth, 3 November 1645, AT IV. 332–3/CSMK 277.

(5) Letter to Arnauld, 4 June 1648, AT V.193/CSMK 355.

(6) See Marilyn Adams 1987: 1037.

(7) See the Letter to Mersenne, 27 May 1630, AT I.153/CSMK 25–6; *Principles* I.23, AT VIIIA.14/CSM II.201; and the Letter to [Mesland], 2 May 1644, AT IV.119/CSMK 235.

(8) See, for example, Peter Geach 1973 and Margaret Wilson 1978: 120ff.

(9) Gregory Walski (2003) is likely the first to appreciate this insight though he muddies it by characterizing it as a consequence of divine simplicity, indifference, and omnipotence, rather than of simplicity alone.

(10) Cf. Sixth Replies, AT VII.435–6/CSM II.293–4 and the Letter to Mersenne, 6 May 1630, AT I.149/CSMK 24.

(11) Descartes takes pains to distinguish this sense of indifference from the one that sometimes characterizes the human will and that he regards as a "defect" of human freedom. See AT VII.431–3/CSM II.291–2 and *Meditations* IV, AT VII.58–9/CSM II.40–1.

(12) Daniel Garber (1983: 123) and Thomas Lennon (1998: 336) were the first to appreciate this consequence, though they see it as following from Descartes's so-called voluntarism rather than from divine simplicity.

(13) AT VII.55/CSM II.39. See Fifth Replies, AT VII.375/CSM II.258; *Principles* I.28, AT VIII-1.15/CSM I.202 and III.2, AT VIII-1.81/CSM I.248.

(14) On their contradictory nature, see Sixth Replies, AT VII.434/CSM II.293. He refuses to deny them in the Fourth Replies, AT VII.248–9/CSM II.173 and *Meteors*, AT VI.239.

(15) Another problem concerns the scope of the doctrine. Some commentators argue that it must be restricted to truths pertaining to finite beings, for otherwise Descartes would be committed to the absurd view that God could make it false that he exists, etc.

(16) Anthony Kenny 1968; 1970.

([17]) Tad M. Schmaltz 1991 and Marleen Rozemond 2008, respectively.

([18]) See Vere Chappell 1997 and Lawrence Nolan 1997, 1998.

([19]) For an account of God's knowledge of creatures sans ideas, and for a fuller treatment of this debate generally, see Nolan 2017.

([20]) See, for example, Curley 1988: 42. Frankfurt (1977) defends this interpretation.

([21]) Letter to [Mesland], 2 May 1644, AT IV.118/CSMK 235.

([22]) Nelson and Cunning (1999: 139–40) were the first to stress the negative consequences of divine simplicity for notions of possibility in Descartes's philosophy. See Bennett (1994: 643–4) on how to interpret "God can do anything".

([23]) Nelson and Cunning (1999) argue that Descartes lacks such a theory because he had no use for one.

([24]) Schmaltz 2011: 110.

([25]) Some commentators claim that the divine attributes are not even rationally distinct (see, for example, Walski 2003: 34). This conclusion is based on a misreading of the doctrine of divine simplicity. When Descartes tells Mersenne that God's willing and understanding are not prior to each other "even conceptually" (27 May 1630, AT I.153; CSMK 26; see Sixth Replies, AT VII.432/CSM II.291), he is merely denying the conceptual *priority* of the divine attributes, not their distinction in reason. Rational distinctions do not violate God's simplicity since they are confined to thought.

([26]) I stress the qualification *its* thought, etc. to avoid well-known problems posed by the transitivity of identity. Descartes of course does not hold the absurd position, for example, that all minds are identical, nor does the identity thesis commit him to it.

([27]) Hoffman (2002) interprets Descartes's notion of a rational distinction as entailing that a substance and its attributes are distinct in reality but inseparable. However, this reading clearly violates Descartes's strict understanding of divine simplicity and is defied by the text cited here, among others.

([28]) See, for example, Kenny 1968.

([29]) Kenny 1968: 65.

([30]) For example, the editors of CSM point out that Descartes's "postulates" are not really Euclidean assumptions but informal requests of the reader ("I ask my readers …"), exploiting the ambiguity in the Latin word *postulata* (CSM II.114n.3).

([31]) Descartes sometimes says that modes "inhere" in their substances, but these are examples of him speaking with the scholastics; see, for example, *Principles* I.61, AT VIIIA. 29/CSM I.214.

([32]) For a different way of reinterpreting this passage, see Nelson 2013: 202–3. He treats the notion of substance itself as an attribute.

([33]) The measure that we use is conventional, but what is measured—viz., the duration of individual substances—is not.

([34]) See, for example, Gueroult 1984: I.193–202 and Kemp Smith 1902: 128–32.

([35]) See Arthur 1988: 354.

([36]) See especially *Principles* I.23, AT VIIIA.14/CSM I.201.

([37]) Arthur 1988: 355–6.

([38]) Kemp Smith (1902: 132) attributes this view to Descartes.

([39]) Gueroult (1984: I.199) and Arthur (1988: 356–7) make this point in a different way.

([40]) See, for example, Gueroult 1984: I.63–74, Lennon 2007, and Sowaal 2004.

([41]) To suppose there is only one thinking substance (i.e. one soul) would be to commit the Averroist heresy.

([42]) I owe this insight to Alan Nelson in conversation, though I absolve him of the conclusions I draw from it.

Lawrence Nolan

Department of Philosophy, California State University—Long Beach

Mind and Psychology in Descartes

Gary Hatfield

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Abstract and Keywords

This chapter reviews the basic tenets of Descartes's mind–body dualism and its context, including the epistemological role of mind in its capacity as a pure intellect and as part of a being with sensory perception. Then, putting aside the metaphysics of dualism, it focuses on the functional aspects of mind and its relation to body, and on the role of the bodily machine in Descartes's psychology. Within this large territory, it examines *mind* and *psychology* as categories applicable to Descartes's writings before turning to the active role of the brain in Descartes's theory of mind and machine psychology, including his "natural geometry", his theory of the passions, and the machine psychology of mindless non-human animals—and of human beings, when the body acts without direction from the mind.

Keywords: mind–body dualism, active brain, machine psychology, natural geometry, passions

(p. 106) 1. Descartes and the Body

DESCARTES'S philosophy of mind, and especially his substance dualism, has often been blamed for the supposed ills of modern philosophy by his Anglophone interpreters.* Allegedly, he equates the self with the disembodied "I" that appears in his *Meditations on First Philosophy* (Meditations I–V), resulting in a conception of the mental as disengaged from the body and environment, and elevating the mental over the bodily.[1] Consequently, mental states are better known than bodily (material or physical) states, and, on this basis, Descartes has often been assimilated to a sense-data epistemology.[2] In addition, his concern with clear and distinct ideas and mathematical certainty is said to have engendered a hyper-intellectualization of the mental, in which a disembodied mathematical precision is imposed on sensory experience, and the psychological processes of sensory perception are described as mental derivations.[3] (p. 107) Accordingly, Descartes also has an intellectualized vision of human action as always guided by rational planning.[4]

In recent decades, historians of philosophy have pushed back against this reading of Descartes. They do not typically deny his substance dualism, but they point out that Descartes also argued that mind and body are joined to form a unit in the human being and that this union involves significant mind–body interactions that condition mental activity and content. The topic of mind–body union and interaction dominates Meditation VI (AT VII.78–90). The contribution of the body in the production of mental states is also prominent in the *Principles of Philosophy* and, concerning the theory of vision, the *Dioptrics*. Further, Anglophone historians of philosophy have come to appreciate the psychological relevance of physiology in Descartes's theory of mind, including his conception of the body as a machine—already found in Meditation VI (AT VII.84), but especially salient in the *Dioptrics* (disc. III–VI), *Passions of the Soul* (henceforth, *Passions*), and *Treatise on Man*.[5]

Descartes cared about the body, as part of the whole human being and as the cause of much human behavior. As he explained to Arnauld in the Fourth Replies, the machine of the body is able to produce protective behavior by itself, without mental intervention:

> When people take a fall, and stick out their hands so as to protect their head, it is not reason that instructs them to do this; it is simply that the sight of the impending fall reaches the brain and sends the animal spirits into the nerves in the manner necessary to produce this movement even without any mental volition, just as it would be produced in a machine. (AT VII.230/CSM II.161)[6]

As opposed to a hyper-intellectualized "sense-plan-move" sequence underlying all behavior, Descartes here explains that the body has its own mechanisms to defend the human being in response to imminent danger. In exigent circumstances (as opposed to instances in which conscious mental deliberation might patently be required), the mind is not needed to assess the danger: the body is wired to respond appropriately. This is not an isolated example; he invokes similar mechanisms in the *Passions* (e.g. I.13) and the *Treatise on Man* (e.g. AT XI.141–2).

Still, Descartes is a dualist and his position exhibits the problems that come with substance dualism, including that of accounting for the interaction between material and mental substance. Another such problem stems from his holding that mind and (p. 108) body are substances that can exist by themselves, while also holding that the human being is a substance composed of these two substances (mind and body). This doctrine has been extensively examined, in search of a way of making Descartes's metaphysics of dualism consistent and intelligible.[7]

This chapter first reviews the basic tenets of Descartes's mind–body dualism and its context, including the epistemological role of mind in its capacity as a pure intellect and as part of a being with sensory perception. It then puts aside the metaphysics of dualism to focus on the functional aspects of mind and its relation to body and on the role of the bodily machine in Descartes's psychology. Within this large territory, it explores four topics. First, it considers the relation between mind and psychology as categories applicable to Descartes's writings. The remaining three topics concern the active role of the brain in

Descartes’s theory of mind and his machine psychology: the interpretation of natural geometry as a non-intellectualized function of brain mechanisms; the place of the bodily machine in Descartes’s theory of the passions; and the psychology of mindless non-human animals—and of human beings, when the body acts without direction from the mind.

2. Metaphysics and Mind

From his school studies of Cicero and of Jesuit Aristotelian commentaries, Descartes would have been familiar with a range of philosophical positions and authors, including ancient atomism, Plato and Aristotle, skepticism, and Stoic philosophy. He offered his philosophy as something new, especially emphasizing that it was to replace the dominant scholastic Aristotelianism. Indeed, at one point he planned to coordinate his *Principles of Philosophy* with the reprinting of an Aristotelian textbook together with his commentary and assessment, teaching that Aristotelian philosophy should be scorned by comparison with his own (AT III.259–60/CSMK 161).[8]

This Aristotelian philosophy contained a theory of the soul (*anima, âme*), which it conceived as the form of a living body. Forms were themselves active principles that gave each type of body, living or non-living, its characteristic properties and patterns of activity; those forms that defined a type of thing were called “substantial forms”, because they were substance-making. Each natural kind, whether animal, vegetable, or mineral, had a form that was responsible for its essential properties. Each living thing was attributed a soul as its substantial form. In the simpler textbooks, the soul was given three fundamental powers: *vegetative*, which included the sub-powers of nutrition, growth, and reproduction, and which belonged to plants and animals alike; *sensitive*, including the five external senses, internal senses such as imagination and memory (p. 109) (which afforded animal cognition), the ability to move, and sensory desires (to pursue bodily goods), capacities that belonged to all animals; and *rational*, which included the ability to form universal concepts by comparing the properties of individual things, and also the rational will, which underlies judgments and seeks goods beyond the bodily. The rational soul was limited to human beings.[9]

Descartes sought to change the received conceptions of both mind or soul and body or matter. As regards body, his new natural philosophy would banish substantial forms from all bodies, whether living or non-living. He attributed to material substance the sole essence of mathematical extension in three dimensions. This matter possessed only the properties of size, shape, divisibility, and motion. As for mind or soul, he restricted that concept to the rational soul of human beings (aside from angels and God). The vegetative powers, shared by plants and animals, would receive a purely mechanical explanation in terms of the sizes, shapes, and motions of the parts constituting a plant or an animal body. Descartes thus considered non-human animals to have no soul or mind. He therefore set himself the task, most fully carried out in the *Treatise on Man*, of explaining their capacities for sensing and remembering through purely material mechanisms, found in the body considered as a machine. As he put it, such functions “follow from the mere

arrangement of the machine's organs every bit as naturally as the movements of a clock or other automaton follow from the arrangement of its counter-weights and wheels". In fact, his mechanical explanations invoked fibers, tubes, and fluids and not gearwheels. But the point was that vital, sensory, and cognitive functions of the non-human animal could be given a fully mechanical explanation, without any need for a "vegetative or sensitive soul" (AT XI.202/CSM I.108).

Only the functions of the rational soul required a non-material agency, which Descartes preferred to call "mind" (or "thinking substance") rather than "soul" (AT VII.161, 169–70, 356). He conceived this mind as an immaterial substance, lacking in extension. Formally, it has two powers: intellection (also described as "perception") and volition (AT VII.56; *Principles*, I.32). Intellection or perception is a passive power of representing, and will is an active power of wanting, affirming, or denying (*Passions*, I.17–20). When considering the mind as a substance that is independent of the body, the intellect would be a pure power of thought, having as its objects the ideas of God, the immaterial mind, and matter as pure mathematical extension lacking all sensory qualities such as color or heat.[10] Its volitions would be limited to making judgments about God, the mind, (p. 110) and pure extension, as well as to wanting non-material goods (such as to love God, or to judge well). It would, of course, be conscious of these various ideas and volitions. In fact, many interpreters take consciousness to be the essence of this purely mental substance. Others, however, find that Descartes held the essence to be perception or representation. On this view, the ability to have ideas—which are all "as it were of things" (AT VII.44/CSM II.30), that is, which are all representations—would be the essence of mind;[11] volition would be a secondary characteristic.

But even though the mind can be conceived independently of the body, in its natural state it is embodied. The body is needed for the mind to experience sensations, to imagine figures, and to will bodily movements (AT VII.78–9, 219). It is also implicated in internal sensations, such as hunger or thirst, and in any other appetites arising from the body (AT VII. 80–1). Further, a body, including nerves and a brain, is needed for all passions proper (such as love, hatred, or desire), that is, all passions that have the body as a cause (as distinct from purely intellectual emotions, such as the joy felt in contemplating God; *Passions*, I.27–9, II.91, 147). In response to sensations and passions, the will might act to affirm a judgment about sensory things or to accept or resist the inclinations of the passions. These various states of sensation, imagination, felt passion, and volition are also conscious.[12]

From this brief survey, we can see why Descartes considered his new philosophy to be revolutionary: he de-animated matter, treated the cognitive capacities of non-human animals mechanistically, and restricted mindedness in the natural world to human beings. The various doctrines just canvassed give the basic elements of his philosophy of mind. But they fall under various heads, from the metaphysical doctrine of substance dualism, to the pure intellect as an epistemic capacity for conceiving the essences of mind and

matter, to the explanations of sensations and passions, to an account of the psychology of mindless non-human animals.

(p. 111) Among his major works, Descartes first argues extensively for his substance dualism in the *Meditations*. He prepares for the argument in Meditation II, in which the meditator excludes from her conception of mind anything having to do with body. But, as he acknowledges, this exercise does not suffice to establish a real distinction between mind and body (AT VII.3, 27, 226). That argument comes in Meditation VI and occupies a single paragraph (in the pagination of the translation, CSM II.54). In that passage, he does not in fact use the term “substance”, but speaks of mind and body as distinct “things”. In the title of the Meditation, he speaks of establishing a “real distinction” between mind and body, which he takes to be a distinction between substances (AT VII.78–9), as he elaborates in the Replies to Objections (e.g. AT VII.169–79, 175–6, 222–6). A more formal apparatus for treating of mind and body as distinct substances is given in the *Principles* (I.51–7), including such doctrines as that each substance has a principal attribute (thought or extension) and that each has various determinations of that attribute, such as volitions and perceivings for the mind, or size, shape, and motion for bodily substance (matter). (See Chapter 5 on Descartes’s Metaphysics).

These few passages constitute Descartes’s most extensive treatment of the ontology of mind and matter. They are sparse compared with his treatment of the activities and relations between mental and physical states, and they leave many questions unanswered. One such question has been mentioned: how to understand, metaphysically, that mind and matter are independent substances, which nonetheless are both essential constituents of a composite being, so that the body is not merely a vessel for the soul but is substantially united to it (AT VII.220–3). A related problem, raised by many of Descartes’s critics, concerns how an immaterial mind lacking extension could causally interact with extended matter. In correspondence with Princess Elisabeth, Descartes came to admit that “the union of the soul and the body is known only obscurely by the intellect” (AT III. 691/CSMK 227). Subsequently, in a Letter inserted into the first French edition of the *Meditations* (of 1647), Descartes explained that, in the *Meditations*, he had “not yet dealt with at all” the task of providing “an explanation of the union between the soul and the body”, which would be needed to explain their causal interaction (AT IXA.213/CSM II. 275). The *Principles* (especially IV.189–98) assumes such an interaction, but does nothing to explain it. One might see the two sentences on activity and passivity in the first article of the *Passions* as a gesture in this direction, but they provide no elaboration of *how* the body is able actively to cause the passions of the soul.[13]

Another aspect of Descartes’s philosophy of mind that has received special attention in recent years concerns the pure intellect as a power for knowing. The scholastic Aristotelians known best to Descartes (the Jesuits Toledo, Rubio, and the Coimbran commentators) had held that all thought relies on an image. The intellectual power responds to images by forming universals. The power that does this was considered to be immaterial,

even though it was a power of the rational soul, which itself was intrinsically or by nature the form of a corporeal thing, the human body.

(p. 112) In the *Meditations*, Descartes denied that all thought relies on an image.[14] There are some thoughts that are purely intellectual apprehendings of essences, including the principal attributes and modes of substances. It is unsurprising that Descartes held that God is not known by an image. All the same, he departed from his Scholastics in maintaining that we have an idea of God's essence that is known to us directly and clearly, and not by way of analogy with created things or through confused concepts.[15] It is also unsurprising that Descartes found that the essence of mind is known through the intellect. This fits with the accepted notion that it takes an immaterial power to know an immaterial power—although, again, Descartes, contrary to his Jesuits, held that human beings know thought (the essence of mind) clearly and distinctly. But it is somewhat surprising that (as mentioned) he held that extension can be grasped in a purely intellectual manner, independently of sense and imagination. This is also done by the Cartesian "pure intellect". On some readings of *Meditations*, that work is constructed to wean its scholastically educated readers away from a reliance on the senses and imagination in searching for metaphysical principles and toward the use of the pure intellect, freed from sensory trappings, in knowing the essences of things.[16] We should not, he explained, seek to derive from sense perceptions the "essential nature of the bodies located outside us"; rather, we should first allow the (pure) intellect to examine the matter (AT VII.82–3/CSM II.57–8). (Of course, if readers fail to find the purely intellectual ideas that Descartes directs them toward, his arguments and procedures become suspect).

A further aspect of Descartes's philosophy of mind has also received considerable attention: his theory of sense perception.[17] Descartes himself considered this topic to be especially important. Meditation VI, by far the lengthiest of the six, devoted roughly two pages (in CSM II) to the announced topic: "The existence of material things, and the real distinction between mind and body" (AT VII.71/CSM II.50). An additional two pages articulate the distinction between imagination and pure intellect. The remaining eight and a half pages concern Descartes's presentation of traditional thinking about the senses and his reasons for doubting such thinking (two pages), and the new positive role that he envisions for the senses in everyday life (and in making measurements for scientific purposes).[18] He maintains that "the proper purpose of the sensory perceptions (p. 113) given me by nature is simply to inform the mind of what is beneficial or harmful for the composite of which the mind is a part" (AT VII.83/CSM II.57). The "composite" is the whole human being, consisting of mind and body. The senses may be thought to be primarily concerned with finding objects or events that are beneficial for the body (such as food and drink) and with avoiding deleterious things (falling over a cliff, being burned by fire).

Not only in Meditation VI, but in Descartes's works as a whole, the senses receive great attention (as in the *Dioptrics, Passions*, and *Treatise on Man*). Some of this attention comes from his desire to replace the Aristotelian notion of sensible species (a kind of "accidental form", such as might arise from the color red, that was thought to be transmitted through the air and to be an instance of the red quality in itself) with a mechanistic ac-

count of the action of light and color, according to which color in the world is a property of surfaces that puts a certain spin on the microscopic particles that constitute light (e.g. *Dioptrics* I, AT VI.91–2). This rethinking of the metaphysics of sensory qualities belongs in large part to Descartes's physics and metaphysics. In his theory of mind and his psychology, Descartes was concerned with sensory ideas as representations. Some interpreters hold that he ascribed representational content, no matter how obscure and confused, to all sensory ideas, whereas others maintain that he did not regard the ideas of what were later (by John Locke and Robert Boyle) called "secondary qualities" to be representational. This question, which in today's language asks whether Descartes attributed intentional content to all sensory perceptions (taken widely, to include the passions), has generated an extensive literature.[19]

3. Mind and Psychology

What does it mean to apply the term "psychology" to Descartes's theory of mind, or to other aspects of his philosophy? Recall that Aristotelian psychology (or, in Latin, *De anima* writings) extended to all living things, positing vegetative, sensitive, and rational powers in various souls (from plants through non-human animals to human beings).[20] This Aristotelian framework may help bring order to aspects of Descartes's philosophy of mind and psychology that are not concerned with the metaphysics of substances or the epistemological traits of various mental faculties (intellect, sense, and will).

Descartes, as mentioned, sought to mechanize both the notion of a living thing in general (with its vegetative powers) and also the sensitive powers of the soul. The sensory capacities belong to psychology as it came to be reconceived so as to exclude the merely vital powers, limiting its domain to the sensitive and cognitive powers of (p. 114) non-human and human animals. This new conception was codified by the eighteenth-century German philosopher Christian Wolff in his books on empirical and rational psychology. Due to its complex lexical history, the term "psychology" did not prominently come to distinguish between merely living things (plants are included here) and those imbued with cognitive powers, whether sensitive or rational, until Wolff's books.[21] All the same, Descartes himself grouped the sensitive and rational together as "mental" powers in the human being. But he also allowed that the sensitive psychology of non-human animals could be accounted for entirely mechanistically. This means that apparently cognitive activities, such as learning via memory, could be achieved by mechanical means. Indeed, in the *Treatise* (AT XI.177–9), Descartes offered a mechanism for associative learning, without invoking mentalistic concepts such as representation or similarity in perceived qualities (the latter, at least, being a usual component of mentalistic accounts of association).

We are confronted, then, with three different aspects of a "Cartesian psychology". First, his account of the epistemic faculties of sensation, imagination, memory, intellection, and will, and their relations and metaphysical bases. This is a kind of philosophical psychology (summarized above). Second, the psychology of the mind–body unit, as the mind interacts with the body to account for the functional capacities of sense, imagination, memory,

the passions, and bodily motion. This is an embodied psychophysical, or psychophysiological, psychology. In Descartes's hands, this psychophysiology does not relegate the body to a mere passive conduit for external influences on the sense organs, but it assigns an active role to the nerves and brain in processing external influences and causing appropriate mental states to arise in the mind. Further, some bodily behaviors, even in the ensouled human being, result from mechanistic processes, without the intervention of the soul or mind. This opens the way for the third conception of psychology, machine psychology. Descartes holds that all of the behavior of non-human animals, whether based in instinct or learning, must be accounted for mechanistically, without invoking mentalistic concepts.[22] This machine psychology is articulated in detail in the *Treatise*, a work that describes the counterfactual situation of a mature human body not conjoined to a mind. This fictional narrative allows it to examine the human body as it would produce mental states psychophysiologically when conjoined to a mind, while also presenting mechanisms found in non-human animals and operating independently of mind.[23] Some of the mechanisms described in this work are presupposed in the *Dioptrics* and the *Passions* (which have the mind present), with the result that "machine psychology" appears in psychophysiological accounts of human actions and experiences.

(p. 115) 4. Psychophysiological Psychology and (Pure) Machine Psychology

4.1. The Active Brain: Natural Geometry

Descartes's attitude toward human behavior is often taken as a prime exemplar of hyperintellectualization, in which reasoning and planning are behind all of the everyday actions that preserve the body by guiding it away from harm and toward bodily goods. This conception also extends to his accounts of the senses. Indeed, in a brief passage from the Sixth Replies, Descartes himself says that, in the *Dioptrics*, he showed "that size, distance, and shape can be perceived one from the other by reasoning alone" (AT VII.438, my translation). This passage may seem to affirm that all perception of size, distance, and shape requires intellectual calculation, but it may simply be saying that these properties *can* be perceived by deducing one from another, through unnoticed "ratiocination". In any event, in the more developed accounts of distance perception in the *Dioptrics* and *Treatise*, Descartes offers a psychophysiological mechanism for distance perception, involving no mental calculation.

In the early seventeenth century, Kepler discovered the role of the lens in forming a retinal image in the eye as the basis for vision. He was aware that, to retain a sharp image of the scene, either the shape of the eye or the shape of the lens must be changed in accordance with the distance to the object upon which the eyes are fixed. It was left to Descartes to realize that this change in the eye, which he favored as a change in the shape of the lens (at least in the *Treatise*, AT XI.155–6), can serve as a sign or physiological correlate of the distance to seen objects. Descartes reasoned that this change in

shape is controlled by a central brain state and that, since the accommodation of the lens co-varies with the distance to the object, so too should the central brain state that controls it:

> The seeing of distance … depends, firstly, on the shape of the body of the eye. For, as we have said, for us to see things close to our eyes this shape must be slightly different from the shape which enables us to see things farther away; and as we adjust the shape of the eye according to the distance of seen objects, we change a certain part of our brain in a manner that has been instituted by nature to make our soul perceive this distance. (AT VI.137/CSM I.170, translation altered)

This is a psychophysiological account; the soul or mind is made to perceive a fixated object at one or another distance in accordance with the variation of a brain state that controls the accommodation of the eye. No calculation or inference is needed.

The second means for perceiving distance involves the triangle of vision (Figure 6.1). With the eyes focused on an object, consider a triangle with the distance between the two eyes as its base (LM) and with the remaining two sides being the lines of fixation for the two eyes (which form angles with the base, and join at the point of fixation, N). (p. 116) For nearer objects, these angles are smaller, and for objects farther away, larger; they co-vary directly with the distance. How does the visual system incorporate these facts? Descartes speaks of the perceiver as "being acquainted with [*cognoistre*]" the distance "as if by a natural geometry" (AT VI.137; see also *Treatise*, AT XI.160). The majority opinion is that, by "natural geometry", Descartes means that the mind calculates the distance to the point of fixation by solving the size of the triangle (or its altitude) via angle-side-angle.[24] In this case, distance perception would depend on reasoning.

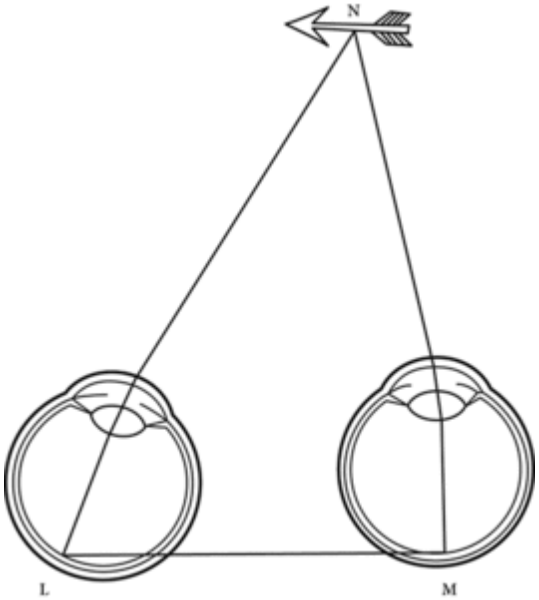


Figure 6.1 The triangle of convergence. The converging eyes fixate point N. Inter-ocular line segment LM, together with the angles of rotation for the eyes in a given fixation, form a specific triangle. Because segments LN and MN are intended to run from the focal points of the eyes, the lines should be straight, not broken as in the diagram, and eye M should be rotated slightly left. This drawing, created long after Descartes's death, originally appeared in the 1664 *L'Homme* (*Treatise on Man*).

Redrawn from Descartes's *L'Homme* (1677: 46), author's collection.

In the *Treatise*, Descartes examines the physiology of distance perception more fully. He develops an account in which the central brain state controlling the direction of the eyes as they fixate on an object belongs to the pineal gland (AT XI.174–6, 180–8). When the object is farther away, the physiological processes that control the fixation of the eyes (p. 117) cause the gland to remain upright (Figure 6.2a). When the object is near, the gland leans forward (Figure 6.2b). There is a direct relation between the distance to the point of fixation and the lean of the pineal gland. Under the assumption of the *Treatise*, that the machine of the body is described as functioning without a mind, these operations occur purely through brain physiology. Accordingly, when Descartes equates the lean of the gland with the "idea of distance" (AT XI.183), he uses the term "idea" as is usual in the *Treatise*: to mean a corporeal idea that is formed by the body, which would cause the perception of distance in the mind if a mind were united to the body.[25]

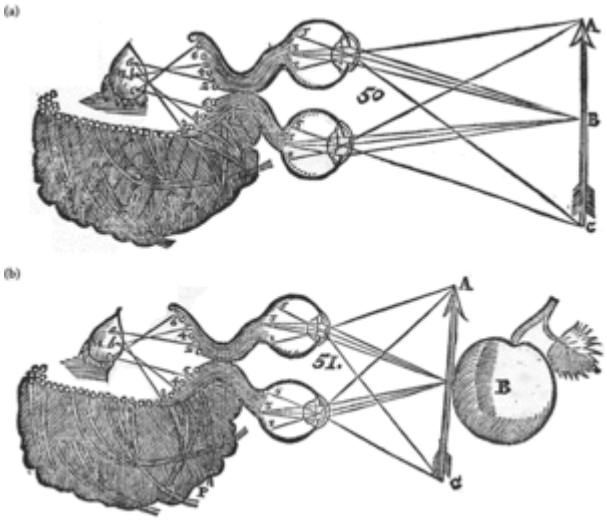


Figure 6.2 The visual system in the *Treatise*, showing pineal physiology. Diagrams (a) and (b) exhibit differences between the two eyes when they are directed toward objects at different distances. In (a), the object is farther away, the angles formed with the inter-ocular line are larger, and the gland is upright. In (b), the object is nearer, the angles are more acute, and the gland leans forward. In addition, the lens is slightly thicker for the nearer object.

Reproduced from Descartes's *Tractatus de Homine* (1692: 106, 120), author's collection.

That a mechanical device might measure distance was known to Descartes. In the seventeenth century, geometrical compasses were regularly used to calculate distances, (p. 118) say, across a river, by angle-side-angle (formed by the vertical rod of the theodolite, the sighted angle to the far edge of the river, and the right angle formed by the rod and the surface of the river). Moreover, Descartes himself constructed compasses that "solved" in a mechanical way certain classical problems in geometry, including the trisection of the angle and the Delian problem of doubling the volume of a cube.[26]

Of course, with the surveyor's instrument, a person must read off the width of the river from a scale, or read off the angle and make a calculation. In the psychophysiological human being, the "institution of nature", mentioned in connection with accommodation, would have this role. There would be no "reading" of the lean of the gland, or any calculation. The lean of the gland would directly cause the perception of the distance. Further, the lean of the gland does not itself instantiate the content that the object is a certain distance away. Rather, the lean merely co-varies with distance, as a physical and physiological fact. The institution of nature is adjusted to the varying brain states so that a given lean of the gland produces in the mind the perception (or perceptual experience) of a certain distance. In accordance with the instituted rules of mind–body interaction, the mind provides perceptual content in response to the effects of the brain upon it. Accordingly, in the human being, distance perception (and other conscious or mental aspects of sense perception) is not fully mechanized; the mind has a role to play. But the "natural geome-

try” itself is purely mechanical; the mind has been psychophysiologically adjusted (by “God” or “nature”) to a brain state that mechanically co-varies with distance.[27]

4.2. Machine Psychology in the *Passions*

Descartes gave a similar role to bodily processes in producing the passions of the soul. As mentioned, he taught that the body is active and the mind is passive in producing the passions (*Passions*, I.1, 19–34). But the body is not a mere conduit that conveys the effects of external objects on the senses to the brain, where the passions are caused by animal spirits that flow from the pineal gland (I.31, 36). Rather, in a given situation, such as the presence of a frightful animal, bodily processes, “without any contribution from the soul” or mind, cause the person to flee the animal and simultaneously cause the feeling of fear (I. 38). The original function of fear as felt in the mind is not to initiate avoidance, (p. 119) for the body has already been caused to take flight by purely mechanical processes. Rather, the function of the passions “is that they move and dispose the soul to want the things for which they prepare the body. Thus the feeling of fear moves the soul to want to flee”—that is, the passion of fear serves to make the soul continue what the body is already doing (I.40).

Here again, we are not called upon to attribute representational content to the brain processes that initiate flight in the presence of a dangerous animal. As with the case of distance perception, the brain state can be understood as co-varying with danger, without instantiating the content “danger” (or “benefit”, “harm”, or “novelty”, the three basic contents that are distributed among all the passions, along with other contents, such as the desire to obtain an object that produces joy; *Passions*, II.52–3, 137). The rules of mind–body interaction in human beings have the effect that, on the occurrence of a certain brain state, such as that caused by a frightful animal, the mind is caused to feel fear. The fear presents the animal as dangerous to the person and so as something to avoid, and it affects the will so as to make the person want to keep running. Again, mental contents are aligned with brain states in accordance with the institution of nature, and the content itself is provided by and instantiated on the mind side of the unity.[28]

4.3. Animal Machines and Machine Psychology

On the interpretation offered here, Descartes’s “animal machine” hypothesis excluded all mental aspects, including representational content, from non-human animals and from the imaginary mindless human body of the *Treatise*. At the same time, Descartes described such machines as having sense organs, imagination, memory, instincts, and attention (AT XI.131–202). One might suppose that he means merely to describe physiological states that will subserve those functions in minded beings—and indeed he does use the corresponding mechanisms to explain aspects of sense perception, imagination, memory, and attention in minded beings (e.g. *Treatise*, XI.183). But he also uses this descriptive language in talking about non-human animals, or about human behaviors that he believes can be explained without invoking the mind (such as breaking one’s fall, blinking when a

hand is thrust toward the eyes, and starting to run from a frightful animal). These descriptions constitute what I am calling his “machine psychology”.

The rationale for describing the mechanisms in the animal machine as “psychological” stems from Descartes’s application of psychological terms to machines as just mentioned, and from the role the relevant mechanisms play in accounting for situationally appropriate behavior. Non-human animals (or mindless human bodies) can pull a hand from the fire and forage for food when the stomach is empty (AT XI.191–2, 194–5). Carnivorous (p. 120) animals presumably can grasp their prey and calibrate the distance needed to extend their limbs to hold it.

Such abilities and behaviors fell within the Aristotelian psychology of the sensitive soul. Recall that the powers of the sensitive soul included the external senses and the internal senses of memory, imagination, and animal appetites, powers that sustained the cognitive ability to recognize food or detect danger. Descartes claimed to mechanize these powers (in a passage quoted in Section 2). The *Treatise* explains how the physiology of the body is such that light impulses at the eyes, sound vibrations at the ears, tactile perturbations, and particles associated with taste and smell could affect the nerves and produce correlated brain states. Distance to objects co-varies with a brain state (the lean of the pineal). Descartes suggests that the position of the limbs can be coordinated with distal objects by the brain state that controls the fixation of the eyes (AT XI.181–3). He describes his mindless machines as having a structure such that they seek what is (in fact) beneficial and avoid what is harmful (AT XI.193). Presumably, they do this without instantiating the mental contents *beneficial* or *harmful*.

In essence, Descartes’s machine psychology describes a non-mentalistic physiological behaviorism. Bodily mechanisms subserve behavioral capacities that fulfill the offices of the Aristotelian sensitive soul, and do so without invoking the notions of soul, of sensible species that represent, or of the representative powers of memory. Psychological functions such as sensory guidance, associative learning, and direction toward bodily goods and away from harms are carried out by, and descriptively explained by, purely physiological mechanisms. Descartes’s machines can be ascribed a psychology because, as manifesting the capacities of the sensitive soul, they were considered “psychological” in Descartes’s day (pertaining to *psyche* or *anima*). Indeed, exhibition of these capacities would also be called “psychological” under the narrower, post-Wolffian meaning of the term that was yet to come. But in Descartes, we can have this psychology without a soul.

5. Psychological Functions Across the Mind–Body Divide

Although many studies of Descartes’s philosophy of mind have emphasized his substance dualism, Descartes himself did not (that we can tell) expend great effort in theorizing the mind as a substance or in addressing the attendant metaphysical problems of union and interaction.[29] Rather, he spent time describing the functions and capacities of the mind

taken on its own and as conjoined with the body. These functions and capacities were epistemic and psychological. He produced a philosophical psychology of the knowing (p. 121) power (the intellect, embodied sensory and motor capacities, and the role of the will in judgment), in which he promoted the pure intellect as an instrument of metaphysical knowledge and re-evaluated the place of the senses in human cognition, emphasizing their role in effectively negotiating an environment rife with benefits and harms. He created a physiological psychology of the embodied mind, which sought the rules of mind–body interaction that subserve sense perception, imagination, memory, and behavior. He also envisioned a pure machine psychology, in which the behavioral functions of sense perception, imagination, memory, and the production of situationally appropriate bodily motions are carried out by mindless non-human animals and by the human body itself, when it behaves without the mind involved. Such behavior occurs frequently in human beings, for, beyond the examples mentioned, Descartes also includes “walking, singing, and the like, when these occur without the mind attending to them” (AT VII.229–39/CSM II.161). Although presumably the mind is involved in forming habits of walking and singing, those and other habitual behaviors can, in later occurrences, be completely explained by the animal machine itself, without invoking the mind.

Descartes’s philosophy of the psychology of the human being exceeds a philosophy focused exclusively on mental substance. The capacities of the human being exceed those of mind or of body alone, to include mental states that arise as the result of machine operations, as in distance perception, and the creation of situationally appropriate passions. His is not a psychology of the ghost in the machine, but of mental–bodily synergy as well as autonomous bodily activity. The brain is no passive conduit linking world with mind. As a result of its activity, the brain is able to raise in the mind sensory experiences and passions that are distally focused on the environment. This altered perspective allows us to speak, perhaps, of a new Descartes.

References

Antoine-Mahut, Delphine, and Stephen Gaukroger, eds. (2016), *Descartes’ “Treatise on Man” and its Reception*. New York: Springer.

Broughton, Janet (2008), “Self-Knowledge”, in Janet Broughton and John Carriero (eds.), *A Companion to Descartes*. Malden, MA: Blackwell, 179–95.

Brown, Deborah J. (2006), *Descartes and the Passionate Mind*. Cambridge: Cambridge University Press.

Churchland, Paul (1984), *Matter and Consciousness*. Cambridge, MA: MIT Press.

Cottingham, John (1985), “Cartesian Trialism”, *Mind* 94: 218–30.

Crary, Jonathan (1990), *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. Cambridge, MA: MIT Press.

Cunning, David (2010), *Argument and Persuasion in Descartes' Meditations*. Oxford: Oxford University Press.

Descartes, René (1677), *L'Homme*, 2nd edition. Paris: Girard.

Descartes, René (1692), *Tractatus de Homine*. Frankfurt: Frederick Knoch.

Dretske, Fred (1995), *Naturalizing the Mind*. Cambridge, MA: MIT Press.

Eustachius a Sancto Paulo (1638), *Summa philosophiae quadripartita: de rebus dialecticis, ethicis, physicis, & metaphysicis*, rev. edition. Cologne: Philip Albert.

(p. 122) Fodor, Jerry A. (1980), "Methodological Solipsism Considered as a Research Strategy in Cognitive Psychology", *Behavioral and Brain Sciences* 3: 63–109.

Greenberg, Sean (2007), "Descartes on the Passions: Function, Representation, and Motivation", *Noûs* 41 (4): 714–34.

Hatfield, Gary (1986), "The Senses and the Fleshless Eye: The *Meditations* as Cognitive Exercises", in Amélie Rorty (ed.), *Essays on Descartes' Meditations*. Berkeley: University of California Press, 45–79.

Hatfield, Gary (1998), "The Cognitive Faculties", in Michael Ayers and Daniel Garber (eds.), *Cambridge History of Seventeenth-Century Philosophy*. Cambridge: Cambridge University Press, 953–1002.

Hatfield, Gary (2008), "Animals", in Janet Broughton and John Carriero (eds.), *Companion to Descartes*. Oxford: Blackwell, 404–25.

Hatfield, Gary (2012), "Mechanizing the Sensitive Soul", in Gideon Manning (ed.), *Matter and Form in Early Modern Science and Philosophy*. Leiden: Brill, 151–86.

Hatfield, Gary (2013), "Descartes on Sensory Representation, Objective Reality, and Material Falsity", in Karen Detlefsen (ed.), *Descartes' Meditations: A Critical Guide*. Cambridge: Cambridge University Press, 127–50.

Hatfield, Gary (2014), *The Routledge Guidebook to Descartes' Meditations*. Abingdon: Routledge.

Hatfield, Gary (2015), "Natural Geometry in Descartes and Kepler", *Res Philosophica* 92: 117–48.

Hatfield, Gary (2017), "Descartes: New Thoughts on the Senses", *British Journal for the History of Philosophy* 25: 443–64.

Judovitz, Dalia (1988), *Subjectivity and Representation in Descartes: The Origins of Modernity*. Cambridge: Cambridge University Press.

Loeb, Louis E. (2005), “The Mind–Body Union, Interaction, and Subsumption”, in Christia Mercer and Eileen O’Neill (eds.), *Early Modern Philosophy: Mind, Matter, and Metaphysics*. Oxford: Oxford University Press, 65–85.

Maull, Nancy (1980), “Cartesian Optics and the Geometrization of Nature”, in Stephen Gaukroger (ed.), *Descartes: Philosophy, Mathematics and Physics*. New Jersey: Barnes and Noble Books, 23–40.

Michael, Emily, and Fred S. Michael (1989), “Corporeal Ideas in Seventeenth-Century Psychology”, *Journal of the History of Ideas* 50: 31–48.

Nadler, Steven (2006), “The Doctrine of Ideas”, in Stephen Gaukroger (ed.), *The Blackwell Guide to Descartes’ Meditations*. Malden, MA: Blackwell, 86–103.

Panofsky, Erwin (1991), *Perspective as Symbolic Form*, trans. Christopher S. Wood. New York: Zone Books.

Rodis-Lewis, Geneviève (1978), “Limitations of the Mechanical Model in the Cartesian Conception of the Organism”, in Michael Hooker (ed.), *Descartes: Critical and Interpretive Essays*. Baltimore: Johns Hopkins University Press, 152–70.

Rorty, Richard (1978), *Philosophy and the Mirror of Nature*. Princeton: Princeton University Press.

Rozemond, Marleen (1998), *Descartes’s Dualism*. Cambridge, MA: Harvard University Press.

Rozemond, Marleen (2006), “The Nature of Mind”, in Stephen Gaukroger (ed.), *The Blackwell Guide to Descartes’ Meditations*. Malden, MA: Blackwell, 48–66.

Simmons, Alison (1999), “Are Cartesian Sensations Representational?” *Noûs* 33: 347–69.

Simmons, Alison (2008), “Guarding the Body: A Cartesian Phenomenology of Perception”, in Paul Hoffman, David Owen, and Gideon Yaffe (eds.), *Contemporary Perspectives on Early Modern Philosophy: Essays in Honor of Vere Chappell*. Buffalo, NY: Broadview Press: 81–113.

(p. 123) Suárez, Francisco (1998), *Metaphysical Disputations* (selections), in Roger Ariew, John Cottingham, and Tom Sorell (eds.), *Descartes’ Meditations: Background Source Materials*. Cambridge: Cambridge University Press, 29–50.

Vidal, Fernando (2011), *The Sciences of the Soul: The Early Modern Origins of Psychology*, trans. Saskia Brown. Chicago: University of Chicago Press.

Wheeler, Michael (2005), *Reconstructing the Cognitive World: The Next Step*. Cambridge, MA: MIT Press.

Williams, Michael (1986), “Descartes and the Metaphysics of Doubt”, in Amélie O. Rorty (ed.), *Essays on Descartes’ Meditations*. Berkeley: University of California Press, 117–39.

Wilson, Margaret D. (1993), “Descartes on the Perception of Primary Qualities”, in Stephen Voss (ed.), *Essays on the Science and Philosophy of René Descartes*. New York: Oxford University Press, 162–76.

Wolf-Devine, Celia (1993), *Descartes on Seeing: Epistemology and Visual Perception*. Carbondale: Southern Illinois University Press.

Notes:

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([1]) Paul Churchland (1984: 8): according to Descartes, “the real *you* is not your material body, but rather a nonspatial thinking substance”; Jerry Fodor (1980: 64): for Descartes, “how the world is makes no difference to one’s mental states”. Complaints about privileging the mental also come from postmodern French literary critics, e.g. Judovitz 1988: 42–3.

([2]) Richard Rorty (1978: chs. 1–3) blames Descartes for originating “veil of ideas” skepticism (160). Michael Williams (1986: 131–2) argues that Descartes made incorrigibly known sensory states the “foundation” of his epistemology, rendering “sensations” as “basic data”, detached from the activity of bodily sense organs.

([3]) These complaints are heard especially from art historians, e.g. Panofsky 1991; Crary 1990. Among historians of philosophy, this topic arises in interpreting Descartes’s “natural geometry” as geometrical calculation: Maull 1980; Wilson 1993. Maull and Wilson avoid skeptical implications, whereas Crary (1990: 43) contends that the isolated mathematical point of view of the camera obscura detaches the perceiver from the actual world.

([4]) Wheeler (2005: chs. 2–3) has Descartes explaining human behavior generally through a sense-plan-move cycle that involves formulating and rationally choosing among alternative actions.

([5]) Brown (2006: 3, n. 6) lists recent Anglophone scholarship emphasizing mind–body unity; her book studies the *Passions* in a context including physiology. The chapters in Antoine-Mahut and Gaukroger (2016) describe the *Treatise on Man* and its reception. French literature on Descartes has long appreciated his physiology; see Rodis-Lewis 1978 (and her references).

([6]) “Animal spirits” are subtle matter; as Descartes understood them, they are purely material and are “spiritual” only in being a fluid that flows easily (*Treatise*, AT XI.129, 132).

([7]) See Cottingham 1985 and Brown 2006: ch. 5, and the literature they cite.

([8]) This textbook was by Eustachius a Sancto Paulo (1638). Descartes seems to have acquired and read it only in 1640 (AT III.232).

([9]) On substantial forms and powers of the soul in the scholastic Aristotelians, especially those known to Descartes, see Hatfield 1998: 955–61 and 2012: 156–66. In 1640, when he mentions Eustachius, Descartes remembers Jesuit commentaries on Aristotle he read some twenty years earlier, by the Coimbran commentators, Francisco Toledo and Antonio Rubio (AT III.190). Trusting his statement of twenty years, we may suppose that he read these books as he embarked on his quest to form a new philosophy (*Discourse on Method* II, AT VI.22).

([10]) Descartes argues that the pure intellect operates independently of the senses or brain at AT VII.72–4. He uses this pure intellect to contemplate God in Meditations III and IV, to contemplate pure geometrical extension in Meditations V and VI, and to understand the mind as immaterial in Meditation VI (AT VII.78). In replying to Arnauld's objections, he notes that, until a certain point in Meditation VI, he was "supposing that I was not yet aware that the mind possessed the power of moving the body, or that it was substantially united to it" (AT VII.219/CSM II.154–5). On this reading, when, in Meditations I–V, Descartes supposes that his mind, independently of his having a body or brain, could have all the sensations he has, he is supposing either that God or an evil deceiver would cause those sensations, or that, at that point, he was simply unaware of having a body that was causing those sensations. He subsequently clarifies that, up until death, the mind is united to the body (AT VII.228; *Passions* I.5–6).

([11]) For discussion, see Rozemond 2006, Broughton 2008, and Hatfield 2014: 265–7, 335–7. In Meditation III, Descartes says that "the objective mode of being belongs to ideas by their very nature" (AT VII.42/CSM II.29). In accord with his era, Descartes used the term "the objective reality of ideas" to mean their representational content (AT VII.40, 161/CSM II.28, 113), or what we would today call their intentional content. In Meditation VI, he describes the thinking substance as "an intellectual substance" (AT VII.78/CSM II.54); in the Synopsis, he ascribes to the mind "an intellectual nature" (AT VII.12/CSM II.9).

([12]) In the *Meditations*, perceptions include both intellectual and sensory ideas (the perceptions are the ideas). These seem to come from various sources: some seem to be innate; some seem to be "adventitious", as sensory ideas; and some "invented by me" (AT VII.37–8/CSM II.26). The innate ideas have their own integrity and cannot be made up (AT VII.45–6, 64, 117–18). Sensory ideas are caused in us (AT VII.79–80). Invented ideas are put together out of innate or sensory ideas (AT VII.43, 117). Finally, the will is described as an active power (AT VII.57).

([13]) For an overview of the large literature generated by these sentences, see Brown 2006: ch. 5.

([14]) On Descartes's conception of the intellect in relation to scholasticAristotelian conceptions, see Rozemond 1998.

([15]) On the Scholastic notion (not shared by all, but common to Descartes's Jesuit Scholastics) that God is known by analogy or else by confused concepts, see Suárez 1998: 37. On the various doctrines of the Scholastics on intellectual knowledge, images, and knowledge of God, see Hatfield 1998: 955–7, 959–61. Descartes allowed that our idea of God is not, in technical language, "adequate" (fully complete) (AT VII.140, 152, 220–1), which he found to be consistent with claiming that his idea of God is maximally clear and distinct (AT VII.46).

([16]) For readings of the *Meditations* as uncovering the pure intellect, see Hatfield 1986, Cunning 2010, and the literature they cite.

([17]) See Simmons 2008, Hatfield 2017, and the literature they cite.

([18]) Descartes expresses hope for arriving at the truth concerning "the size or shape" of the sun (AT VII.80/CSM II.55); he knew that to ascertain properties of the sun such as its size or its distance from the earth, one would need to make measurements (*Principles* III. 5/AT VIIIA.82).

([19]) For entry into the literature, see Simmons 1999, Nadler 2006, Greenberg 2007, and Hatfield 2013.

([20]) The term "psychologia" was primarily used in the sixteenth and seventeenth centuries to denote the subject area that studied the soul and its powers, the topics of Aristotle's *Logon peri tes psyches* (rational discourse on the soul). This subject matter was organized in relation to *De anima*, the Latin translation of Aristotle's work on the soul.

([21]) On the discipline of psychology in the sixteenth and seventeenth centuries, including Aristotelian and Galenic usages, and Wolff's codification of the new meaning for "psychology", see Vidal 2011: chs. 1–3.

([22]) I defend this reading of Descartes's animal machine hypothesis in Hatfield 2008. Note that Descartes ascribed instincts to animal and human bodily machines (e.g. AT XI.192) and also what we would call learning (AT XI.177–9, 192; AT I.134).

([23]) Descartes described the *Treatise on Man* (as part of his *World*) as a work in which he "supposed the body of an animal already formed, and merely exhibited its functions" (AT II.525/CSMK 134).

([24]) See Maull 1980: 33, 36; Wilson 1993: 163–5; Wolf-Devine 1993: 77; and Brown 2006: 66–7.

([25]) On "corporeal ideas" in Descartes's early works, see Michael and Michael 1989.

([26]) On geometrical compasses known to Descartes, offering a model for the brain mechanisms that co-vary with distance in the *Treatise*, see Hatfield 2015: 138–9. Descartes did not offer a completely mechanical treatment of distance perception; he accepted that reasoning or mental derivation is sometimes required, as when distance is perceived (or

"imagined") by relating the known size of an object to the visual angle it subsumes (*Dioptrics* VI, AT VI.138–40).

([27]) In Meditation VI, Descartes describes how God (or nature) has adjusted felt sensations to nerve processes; e.g. a nerve coming from the foot, when it is forcefully stimulated, produces a feeling of pain as in the foot (AT VII.86–9). Such regularities form the core of Descartes's psychophysiology. Although not arbitrary (they are adjusted for functionality), they are in a sense brute facts, established by God and not derivable simply from the ideas of nerve motion and of mind as a perceiving substance; see Loeb 2005 for further discussion.

([28]) For thinkers who won't invoke an "institution of nature" arranged by God, the problem of how to link content with material states remains open. Fodor (1980) despairs. Dretske (1995) provides one attempt (among many) at a solution.

([29]) The focus on Descartes's substance dualism in accounts of his philosophy of mind may partly result from the fact that Malebranche, Spinoza, and Leibniz prominently responded to the metaphysics of this dualism, each in his own way. See Chapters 41 and 45 in Part III of this Handbook; see also Chapters 19 and 22, on La Forge and on Malebranche, in Part II.

Gary Hatfield

Department of Philosophy, University of Pennsylvania

Descartes’s Mechanical but not Mechanistic Physics

Helen Hattab

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Abstract and Keywords

Descartes is commonly characterized as the arch-mechanist who rejected the syllogistic demonstrations sought in Scholastic Aristotelian physics, and instead aimed at purely “mechanistic explanations” of natural phenomena. Typical accounts of physical phenomena found in his scientific works, such as that of the properties of salt, are thus interpreted as no more than structural explanations that posit one of many possible arrangements of variously shaped microscopic particles to account for the observed effects. By examining Descartes’s own statements about the different ways in which his physics is “mechanical”, and by placing these in the context of the Renaissance revival of the geometrical demonstrations found in the Aristotelian *Questions of Mechanics*, this chapter shows that, and in what way, Descartes aimed at mathematical and mechanical, but not mechanistic, demonstrations of physical phenomena like salt.

Keywords: mathematical demonstration, mechanism, Plempius, Renaissance mechanics, scientia

(p. 124) THE most extensive, and perhaps also the most contentious, part of Descartes’s thought is his physics. Unlike his metaphysics, to which he devoted the *Meditations on First Philosophy* and part I of the *Principles of Philosophy*, his reflections on physics span almost his entire corpus, from the *Rules for the Direction of the Mind* to *The World*, the *Discourse on Method* and *Essays*, the *Meditations*, and the *Principles*. Over the past quarter-century or so, Descartes’s physics, and his natural philosophy as a whole, has enjoyed renewed attention from philosophers. Hotly debated questions that have emerged include whether Descartes’s physics is deductivist and mathematical; whether/how his three laws of nature are derivable from God’s immutability; whether Cartesian matter is strictly reducible to extension or has intrinsic forces; whether Descartes is committed to true causality among bodies (and in what sense) or to occasionalism; and whether his explanations of physical phenomena are strictly mechanistic (and what that means) and how his particular explanations of physical phenomena relate to earlier ones. It is not my aim in this chapter to give an overview of the doctrines that comprise Descartes’s physics and how commentators over the centuries attempted to resolve these contentious issues. I

will instead explore an issue that lies at the heart of Descartes’s physics and its legacy. Descartes is commonly understood to be the arch-mechanist, but is his physics quintessentially mechanistic? And if so, in what sense?

Descartes’s program for a mechanical physics tends to be underappreciated because, unlike Newton’s physics, Cartesian physics is non-quantitative, seeming to offer a purely descriptive account of the physical world that rests heavily on analogies to everyday phenomena. In the Cartesian universe, solar systems are like water eddies, planets follow circular paths just like a stone rotated in a sling, the particles of light move through a medium like a tennis ball, the diseased human body follows the laws of nature as much as a clock that does not tell the right time, the heart is like a furnace, magnetic matter (p. 125) consists in particles shaped like screws, and the human body is a machine that resembles a fountain or an organ. If this is all it means to inaugurate a mechanical or mechanistic physics, then it hardly seems like an advance over Scholastic Aristotelian physics, which was also largely non-quantitative. I will clarify the sense in which Descartes’s physics was considered mechanical and genuinely mathematical in the seventeenth century, and reveal how it constitutes an innovation in relation to Scholastic Aristotelian physics.

Responding to problems within Aristotelian metaphysics and scientific demonstration, Descartes develops an alternative path to demonstrative certainty in physics. He adopts a form of mathematical demonstration found in Renaissance mechanics to accomplish this aim (Hattab 2009: 120–53). In order to universalize this type of demonstration and apply it to all natural phenomena, Descartes eventually develops a metaphysical account of matter that reifies the formal objects of geometry. This obliterates the Aristotelian divide between natural and artificial objects and entitles Descartes to apply the rules and geometrical principles governing the motions that explain the artificial effects studied by mechanics to all physical phenomena (Hattab 2009: chs. 5–6). The importance of explanations found in Renaissance mechanics to Descartes’s physics is often downplayed because, unlike Galileo Galilei and other mathematicians of the time, Descartes does not apply particular mathematical laws of Archimedean mechanics, such as the law of the lever, to physics (Gabbey 1993: 320). However, there is another Renaissance revival of mechanics, namely that of the *Questions of Mechanics*, a work believed at the time to be by Aristotle. There, one finds “geometrical” demonstrations of the workings of simple machines and select natural phenomena, like water vortices. These demonstrations inspire Descartes to extend the mathematical explanations of mechanics to all of physics. Before illustrating how Descartes does this, the senses in which he considered his natural philosophy “mechanical” must be clarified.

1. Descartes’s Mechanical Physics

A careful examination of Descartes’s statements regarding the relationship between mechanics and his philosophy reveals at least five distinct senses in which his physics is mechanical. I briefly characterize each with one or two representative passages from Descartes’s works before discussing the implications for his physics.

I. The earliest sense in which Descartes considered his philosophy mechanical rests on a similarity in methodology: Descartes claims in the *Rules for the Direction of the Mind* to proceed in his philosophy as one does in the mechanical arts.

> A. "Our method in fact imitates those of the mechanical arts, which do not require the workmanship/art [*ope*] of others, but by themselves transmit in what way their instruments are to be made." (Rule 8, AT X.397)

II. By the time Descartes writes the *Discourse on Method*, the similarity is no longer just methodological; rather, he identifies the rules of mechanics with the rules of nature.

(p. 126)

> B. "For according to the rules of mechanics, *which are the same as those of nature*, when many things tend to move together towards the same side where there is not enough room for all of them (as when the parts of blood coming from the left-hand cavity of the heart all tend towards the brain), the weakest and most agitated must be turned away by the strongest, which in this way arrive at that place on their own." (*Discourse*, Part V, AT VI.54, emphasis added)

A subsequent statement to Debeaune likewise identifies physics and mechanics substantively:

> C. "I would like to be able to meet your request concerning your mechanics; *but although my entire physics is nothing but mechanics*, I have never made a detailed investigation of questions which depend on measurements of speed." (Letter to Debeaune, 30 April 1639, AT II.542/CSMK 135, emphasis added)

Descartes's claim to Debeaune is sufficiently broad and vague that it could indicate sense II or any of the three following more specific senses.

III. The third sense in which Descartes's physics is mechanical is that, like Aristotelian mechanics, Descartes's natural philosophy deduces conclusions from the principles of geometry. Descartes is committed to this conception of a mechanical physics from at least the publication of the *Discourse* all the way to the *Principles of Philosophy*. I refer to this as the demonstrative sense, and argue that this constitutes the core of his mechanical physics.

> D. "And the principles or premisses from which I deduce these conclusions, are only the axioms that the demonstrations of the Geometers depend on, such as, 'the whole is greater than the part', 'if you take away equals from equals, the remaining ones will be equal', etc. not, however, abstracted from all sensible matter, as with the Geometers, but applied to various experiences known by sense and undoubted, as when from the fact that the particles of salt are oblong and inflexible, I deduced the square shape of its morsels, and many others which are evident to the senses;" (Letter to Plempius, 20 Dec 1637, AT I.476)

> E. "But I would also like it to be noted that, in having tried here thus to explain the universal nature of material things, I have certainly not used any *principle* for this which was not admitted by Aristotle and all the other philosophers of all ages. Therefore, this philosophy is not new, but the oldest and most common of all. To be sure I have considered the shapes, motions and sizes of bodies and examined, according to the laws of Mechanics, confirmed by certain and everyday experiences, what must follow from the mutual concourse of these bodies." (*Principles*, Part IV, art. 200, AT VIIIA.323, emphasis added)

IV. The fourth sense (which follows from III) in which Descartes's physics is mechanical is because, like mechanics, it is both mathematical and practical.

(p. 127)

> F. "I do not understand his [Fromondus's] objections to pages 159 and 163 [of the *Optics*, AT I.110]. If my philosophy seems too 'crass' for him, because, like mechanics, it considers shapes and sizes and motions, he is condemning what seems to me its most praiseworthy feature, of which I am particularly proud. I mean that in my kind of philosophy, I use no reasoning which is not *mathematical and evident*, and all my conclusions are confirmed by true observations [*experimentis*]. Whatever I concluded to be possible from the principles of my philosophy actually happens whenever the appropriate agents are applied to the appropriate matter. I am surprised that he does not realize that the mechanics now current is nothing but a part of the true physics which, not being welcomed by supporters of the common sort of philosophy, took refuge with the mathematicians. This part of philosophy has in fact remained truer and less corrupt than the others, because it has useful and practical consequences, and so any mistakes in it result in financial loss. So if he despises my style of philosophy because it is like mechanics, it is the same to me as if he despised it for being true." (Letter to Plempius for Fromondus, 3 October 1637, AT I.420–1/CSMK 64, emphasis added)
>
> G. "Essential forms explained in our fashion, on the other hand, give manifest and *mathematical* reasons for natural actions, as can be seen with regard to the common form of salt in my *Meteorology*." (Letter to Regius, 1642, AT III.507/CSMK 209, emphasis added)

V. Finally, in his mature work Descartes roots the likeness between his explanations in physics and explanations of machines in an ontological identification of things made by nature and things made by art. As in F, mechanics is characterized as a part or species of physics.

> H. "And to this end, things made by art helped me quite a bit: for I recognize no distinction between them and natural bodies, except that the operations of things made by art are for the most part performed by instruments so large that they can easily be perceived by the senses: indeed this is necessary in order that they may

> be fabricated by men. By contrast, however, natural effects almost always depend on certain tools [*organis*] so minute that they escape all the senses. There really are no reasons [*rationes*] in Mechanics which do not also pertain to Physics, of which it is a part or species: nor is it less natural for a clock composed of these or those wheels to tell the time, than it is for a tree originating from this or that seed to produce a certain kind of fruit. For this reason, just as when those who are trained in considering automata, whenever they know a certain machine and inspect some of its parts, easily conjecture from these parts in what way the others which they do not see are made, so from the sensible effects and parts of bodies I have attempted to investigate which are their causes and insensible particles.” (*Principles*, Part IV, art. 203, AT VIIIA.326)

Descartes’s characterizations of his mechanical physics have led to several confusions. First, passages like H prompt a narrow focus on Descartes’s apparent reduction of matter (p. 128) to the properties of extension, and appeals to the arrangements of microscopic material particles (which are interpreted as structural explanations) as the core of his “mechanistic” physics (Gabbey 2001: 441; Gaukroger 2006: 253; Downing 2005: 206; Janiak 2009: 52). On this interpretation, all it means to advance a mechanical physics is to treat natural objects like machines that can be explained by combinations of insensible material particles possessing only primary qualities. But there are at least four other ways in which Descartes insists his philosophy is mechanical, so there would have to be strong textual reasons for privileging this interpretation over the rest. Statements like H are not more frequent or emphatic than passages containing senses II to IV. Placing excessive weight on H hastily aligns Descartes’s program for physics with that of the rival atomist camp (Boas Hall 1981: 434–5). His appeals to microscopic arrangements of material particles then get confused with later uses of mechanistic explanations and the hypothetico-deductivist method.

A second source of confusion lies in the potential to conflate early modern mechanics with post-Newtonian mechanics. Since the foundations of Descartes’s physics include three universal laws of nature that somewhat resemble Newton’s laws of motion, these are easily mistaken as central to Cartesian explanations. The fact that Descartes does not rely on these fundamental laws to calculate and predict specific physical effects then seems like a failure on his part. Since Descartes offers no rigorous quantitative laws in passages like B, where he identifies the rules governing nature with the rules of mechanics, such claims get misinterpreted as rhetorical. However, the *Questions of Mechanics* includes geometrical (but not mathematical in our sense) demonstrations of phenomena like water vortices that parallel Descartes’s explanations of celestial motions. Hence, it is far more charitable and plausible to read Descartes, in B, to refer to the geometrical principles and general rules of motion relied upon in Aristotelian mechanical explanations of simple machines and select natural phenomena. Descartes generalizes the explanations of Aristotelian commentators to the physical universe at large (Hattab 2005). For example, he likens solar systems to water eddies, and celestial bodies to pebbles worn down by waves and carried around by sling shots to apply the geometrical principles used to explain these phenomena in commentaries on the *Questions of Mechanics* more broadly.

This clarifies sense II in which Descartes’s explanations were recognizably “mechanical” to contemporaneous readers familiar with sixteenth-and seventeenth-century Aristotelian mechanics.

Third, a lack of background knowledge regarding what counts as a “geometrical” or “mathematical” demonstration at this time generates confusion. Descartes develops the geometrical forms of demonstration discussed in Aristotelian mechanics and, drawing on Platonic tendencies in this tradition, attributes only geometrical properties to matter to provide a metaphysical grounding for these demonstrations of natural phenomena (Hattab 2009: 85–153). This chapter, however, focuses more narrowly on the demonstrative sense in which Descartes’s physics is mechanical (sense III) as central to his program for a mechanical physics. In making this case, I clarify Descartes’s paradigm example of a mechanical, mathematical demonstration: his explanation of salt. This reveals his physics to provide a creative solution to the problems faced by Aristotelian physics.

(p. 129) First, I separate the methodological sense of ‘mechanical’ (sense I) from the rest, as this is yet another source of confusion. Second, I interpret commonly misunderstood claims Descartes makes to Plempius regarding the demonstrative sense of ‘mechanical’ (sense III). Third, based on a more charitable reading of these passages, I show how sense III underpins senses IV and V and explain why Descartes’s typical explanations of physical phenomena were not intended as mechanistic/structural explanations. I conclude with a re-evaluation of the historical contribution and significance of Descartes’s physics.

2. Mathematical Demonstration

While the path to fulfilling his aim evolves over the course of his career, Descartes’s quest for “truths which suffice for the sure demonstration of countless propositions” persists from the *Rules* to his later works (*Rules*, AT X.362/CSM I.11). In line with Francis Bacon and others, he derides the syllogisms of the Schoolmen as good only for probable cognition and controversies, and defines knowledge proper as “a certain and evident cognition” (AT X.362/CSM I.11). Throughout his writings Descartes looks to arithmetic and geometry as the models for such knowledge as “they alone are concerned with an object so pure and simple that they make no assumptions that experience might render uncertain; they consist entirely in deducing conclusions by means of rational arguments” (AT X.365/CSM I.12). Although he also appears to use the term ‘deduce’ more loosely, especially in publications directed to a non-academic audience, when he first lays out his scientific program in the unpublished *Rules* Descartes employs the technical Scholastic definition of deduction as “an inference of something as following necessarily from some other propositions known with certainty” (AT X.369/CSM I.15; see Clarke 1977 and Gaukroger 1989 for other senses of ‘deduction’ in Descartes’s works). The reference in passage D to deducing conclusions from geometrical principles is most naturally read in the technical sense of ‘deduction’ and this is confirmed by passage F,

written in the same year, in which Descartes assures Fromondus that his philosophy, like mechanics, employs only mathematical and certain reasoning.

By 1637, Descartes took himself to have attained certainty in physics by means of mathematical demonstrations, which like demonstrations already in use in Aristotelian mechanics, make necessary inferences from geometrical principles known with certainty. In trying to reconcile what Descartes professes to have accomplished in 1637 with his earlier likening of his universal method to "those of the mechanical arts" in passage A of the *Rules* cited above, some interpreters water down the meaning of 'deduce' in passages like D and F to mean roughly: "follow an orderly series of steps from the simplest notion to the most complex" (e.g. Recker 1993: 238–341). This in turn makes it hard to take seriously Descartes's claim in passage F that the explanations of his physics have the certainty and rigor of mathematical reasoning. There is, however, no need to dismiss F as rhetorical and give such a weak reading of 'deduce' in passages like D to reconcile (p. 130) them with A. In passage A, Descartes discusses his plan to fashion the tools of a universal method for solving the perfect problems of mathematics and the imperfect problems of physics. He invokes the "mechanical arts" as a model on the grounds that they make their own instruments. In the 1637 letters that include passages D and F, Descartes's focus is not on constructing a method from scratch, but on defending the scientific demonstrations that are the products of an already established method. Here the model he invokes is a type of demonstration used in the Aristotelian mixed mathematical science of mechanics. By the early seventeenth century, "mechanics" is distinct from the "mechanical arts" so Descartes invokes a different model depending on whether he discusses his method or his scientific explanations.

In his influential 1565 commentary on the *Questions of Mechanics* Alessandro Piccolomini elevated mechanics from its status as one of the medieval "mechanical arts" (long considered an inferior, experiential form of cognition that also included fabric-making, armament, agriculture, hunting, medicine, and theatrics) to a mixed mathematical *science* with the same status as the medieval mixed mathematical sciences of astronomy, harmonics, and optics. In the Aristotelian tradition, *scientia* or scientific knowledge differs from art in that it grasps the cause or the reason why something happens, whereas art (in the sense of craft) consists only in experience that, under certain circumstances, a specific effect normally follows. Piccolomini reclassifies mechanics as theoretical scientific knowledge by separating the other traditional "mechanical arts" from Aristotelian mechanics on the grounds that they do not regard matter in the mathematical manner and so do not deal with magnitude. To avoid confusion, he relabels the former the "sellularian arts" (Piccolomini 1565: A4–A4v). Among subsequent commentators, including those cited by Marin Mersenne (and probably familiar to Descartes), the classification of mechanics as a mixed mathematical *science* alongside astronomy, harmonics, and optics is commonplace. When Descartes likens his method to those of the "mechanical arts" in passage A, he refers to the procedures of the above sellularian *arts*. This is confirmed by his subsequent advice in Rule 10 that "we must not take up the more difficult and arduous issues immediately, but must first tackle the simplest and least exalted arts, and especially those in which order prevails—such as weaving and carpet-making, or the more feminine arts of

embroidery" (AT X.404/CSM I.35). But in passages D and F Descartes is clearly referring to the mathematical demonstrations employed in the Aristotelian mixed mathematical *science*, i.e. 'mechanics' in Piccolomini's sense.

With passages A, D, and F placed in their proper context, it is clear that whether he eventually abandoned it or not, the sense in which Descartes's early method is mechanical (sense I) has no bearing on the sense in which the scientific demonstrations of his physics are mechanical and mathematical (senses III and IV). Unlike his overarching method (which according to the blacksmith analogy starts out as a meta-method intended to identify the inborn tools of the mind from which the scientist can then fashion the tools of her trade), Descartes's particular scientific demonstrations (the means to scientific knowledge once the scientist has her tools) emulate demonstrations in the mixed mathematical sciences so as to transfer the certainty that such demonstrations were thought to offer to the realm of physics. This demonstrative, mathematical meaning of 'mechanical' is central to Descartes's physics as it explains why Descartes took (p. 131) his explanations of physical phenomena to be both mechanical and of the same level of certainty as mathematical demonstrations. The other features normally associated with a mechanistic physics (i.e. his matter theory and particular explanations resembling later mechanistic or structural explanations) are outcomes of Descartes's attempt to convince readers that his scientific demonstrations, inspired by the mathematical demonstrations of the Aristotelian science of mechanics, can deliver the certainty Aristotelian physics lacked.

To support this claim, I first clarify why Scholastic Aristotelian scientific demonstrations were widely perceived to fail to deliver certain knowledge of nature. Then, using his example of salt, I reveal how Descartes aimed to remedy this by extending a type of "mathematical" demonstration used in Aristotelian mechanics to physics. Finally, I show how the demonstrations Descartes sought in physics underpin the other features of his mechanical philosophy and why this constitutes a creative and interesting solution to problems of the day.

Scientia in the Aristotelian sense does not mean what we mean by 'science'. Although it involves some observations, it consists in scientific demonstrations, not experiential, probabilistic knowledge. Descartes develops a different path to *scientia* but largely accepts Aristotle's criteria for scientific knowledge, including its deductive, necessary nature. In Book I, chapter 2 of the *Posterior Analytics*, Aristotle defines a demonstration as a scientific deduction where 'scientific' means a deduction that when we have it gives us understanding [*episteme/scientia*] of the reason why something is, not merely that it is (Aristotle 1987: 71b18–19). We attain demonstrative understanding when we proceed deductively (using syllogistic logic) from items which are true; primitive and immediate; as well as more familiar than, prior to, and explanatory of the conclusions (Aristotle 1987: 71b20–3). Aristotle further clarifies that a primitive is a principle. This is an immediate proposition which he defines as "one to which there is no other prior" (Aristotle 1987: 72a7–8). Aristotle distinguishes between two senses of priority: prior or more well known to us, versus prior/more well known by nature. *Scientia* aims at the latter. Things that are more well known by nature are logically prior and inherently more intelligible but further

removed from the senses and hence less well known to us. Aristotle identifies such knowledge with knowledge of universals and so, notwithstanding that we need to sense some particulars to abstract universal concepts, demonstrative understanding proceeds from knowledge of the universal, not the particulars (Aristotle 1987: 72a4).

Whether or not Aristotle intended the practicing physicist to proceed in this manner, such claims were read to imply that s/he must begin with the most intelligible and universal principles and proceed, gradually, down the Porphyrian tree, via less and less general universal concepts, to deduce particular effects; to borrow an example discussed in the sixteenth century by Jacopo Zabarella, we must first understand what natural bodies are (i.e. the genus, the most general universal pertaining to the objects of physics). By understanding the definition of a natural body we grasp the essence of all natural bodies. This enables us to understand that motion is a property or accident of this genus and that there are certain species of motion that are accidents particular to certain species of body (e.g. light bodies move away from the center, heavy bodies towards it). Once we grasp these universals and arrange them correctly (i.e. from the more universal to the (p. 132) less, and according to what belongs to the substance of the thing and what accidents stem from that) we can demonstrate a particular effect, e.g. that air, since it belongs to its essence to be a light body, has the property of moving away from the center.

By the early seventeenth century, complaints about Aristotelian *scientia* had reached caricaturish heights. Most well known is Bacon's criticism that Aristotelian syllogistic logic serves only to transmit and persuade people of existing knowledge. It fails to discover new truths as it moves too hastily from a few particulars to the most general propositions so as to derive intermediate ones. Descartes's physics does not seem to remedy this problem since he takes certain general principles to be evident, and deduces more particular conclusions from them:

> In this book I have deduced the causes—which I believe to be quite evident—of these and many other phenomena from principles which are known to all and admitted by all, namely the size, shape, position and motion of particles of matter … In short, there is nothing in the whole of nature (nothing, that is, which should be referred to purely corporeal causes, i.e., those devoid of thought and mind) which is incapable of being deductively explained on the basis of these selfsame principles; and hence it is quite unnecessary to add any further principles to the list. (*Principles of Philosophy*, AT VIIIA. 314–315/CSM I.279)

Descartes is then thought to have failed in his endeavor to deduce all natural causes from the principles of his physics, instead retreating to "a tissue of hypotheses, guesses, experimental findings and analogies for natural phenomena" (Clarke 1977: 333). However, Bacon's complaint was not the most pressing problem that Aristotelian physics faced. For those who share Aristotle's conception of *scientia*, observing a large number of particulars is neither necessary nor desirable in attaining demonstrative understanding. The fact that one observes, by the five senses, countless instances of air moving downwards, sideways, or in circles does nothing to undermine the logically prior, intelligible universal

knowledge that a light body is essentially such that, absent particular conditions, it naturally moves away from the center. Despite his rejection of Aristotelian accounts of air and motion, Descartes works squarely within this tradition: the senses, while they enter into the process of gaining knowledge at other stages, cannot be the source of the true principles of nature on which scientific demonstrations are built as these are, *pace* Aristotle, the furthest removed from the senses.

There is however another pressing problem with Aristotelian *scientia* that Descartes does address. How can we be sure that the universals employed in demonstrations enable us to grasp the true essences of natural things? This concern targets not the deductive structure of *scientia* but the ability of the universal terms employed in syllogistic reasoning to reliably pick out the true natures of things. One finds this criticism in Bacon as well as Renaissance skeptics, like Francisco Sanches, who complains:

> Let us deduce the thing from the name; for as far as I am concerned every definition, and almost every enquiry, is about names. More fully: we cannot comprehend the *natures* of things; at least, I cannot … You, however, claim that there is a definition (p. 133) which "demonstrates the nature of a thing." Show me one such; you have none; so I draw my conclusion.
>
> (Sanches 1998: 174)

As Bacon also highlights, 'body' and 'motion' are names with accompanying notions that are vague and ill-defined. How can we rely on such notions to give us knowledge of real natures? Already in the *Rules* Descartes sees a way out of this problem. To attain knowledge that is certain, a scientific deduction must emulate those found in mathematics (recall Descartes's Aristotelian definition of deduction as "an inference of something as following necessarily from some other propositions which are known with certainty"). Only arithmetic and geometry concern objects "so pure and simple that they make no assumptions that experience might render uncertain" (*Rules for the Direction of the Mind*, AT X. 365/CSM I.12). In other words, only numbers, squares, circles, etc. can be fully understood without any reliance on the senses—they are purely intelligible objects. This allows mathematicians to make deductions from definitions without worrying that the latter could fail to capture the true natures of mathematical objects.

In Rule 12 Descartes introduces "notions of simple things" pertaining to the science of body that correspond to purely material "simple natures" like shape, extension, and motion (AT X.417/CSM I.43–4). Like the simple mathematical objects that inspired them, insofar as they are perceived by the intellect alone, "we know [these simple natures] so clearly and distinctly that they cannot be divided by the mind into others which are more distinctly known" (AT X.418/CSM I.44). In the *Rules*, simple natures, like their mathematical counterparts, are intelligible entities the notions of which can be necessarily conjoined into propositions and composed through deductions (i.e. propositions combined logically to draw necessary conclusions) to yield certainty (see AT X.421/CSM I.45; AT X. 424/CSM I.47–8). In the *Meditations* Descartes later provides metaphysical arguments to establish extension as the essence of material substance and shape and motion as its

modes. This metaphysics is often read back into the *Rules*. When combined with the watered down sense of 'deduction' as any step-by-step ordering, Descartes's proposal to combine simple notions by deduction in order to obtain certain knowledge is misinterpreted to mean that Cartesian scientific deductions amount to arranging the posited microscopic particles of extended matter into structures that account for the observed effects (i.e. mechanistic explanations).

This is not the path to knowledge Descartes describes in Rule 12. There Descartes replaces the problematic universals of Aristotelian physics (genera and species) with simple natures that resemble mathematical objects. This allows him to combine the simple notions of these natures into propositions, and in turn combine these propositions into chains of deduction that will produce demonstrations that avoid Sanches's complaint. However, such a method exposes Descartes to the criticism that these simple natures, like mathematical objects, are accidental to the real natures of corporeal substances (on Aristotle's metaphysics, quantity is an accident of substance). Descartes shares the Aristotelian commitment to *scientia* as knowledge that deduces natural effects from their causes with necessity. This requires the ability to deduce the observed properties **(p. 134)** from definitions that capture the essential properties of natural things. However, in the *Rules* Descartes had not yet developed the metaphysical foundations that allowed him to later redefine the real essence of matter as extension so as to derive the mathematical properties of bodies from it.

But regardless of its shortcomings, one sense in which Descartes's scientific demonstrations are meant to be mathematical is clear from the *Rules*: Descartes seeks to solve a pressing problem with Aristotelian physics by developing necessary, deductive inferences employing notions that are as simple, clear, and certain as mathematical concepts. Descartes never completed the *Rules*, so how he intended this general insight to apply to the imperfect problems of physics at that time remains a matter of speculation. As confirmed by passages E and F, by the time he completed the *Discourse* and the appended essay on meteorology, his model for physics is the newly founded mixed mathematical science of mechanics. Descartes clarifies how his physics emulates mechanics: passage D spells out that his explanations of natural phenomena, like the demonstrations of mechanics, rely on geometrical principles and G explains that his account of the essences of bodies gives *mathematical* reasons for their actions. Unlike the mixed mathematical sciences, Descartes does not regard quantity and extension as accidents of matter that can be studied independently only *in abstracto*. Treating them as essential allows him to apply geometrical principles to the natures of sensible objects and deduce real properties of those objects. In both D and G Descartes points to his explanation of salt in the *Meteorology* as paradigmatic, suggesting that he deduced the square shape of salt morsels and its actions from the nature of salt, which consists in oblong and inflexible particles.

Read outside the context of the Aristotelian science of mechanics, the salt example creates the mistaken impression that Descartes seeks mechanistic explanations, for his explanation of salt's square shape resembles a sketchy structural explanation more than a deduction, in the strict sense. It seems to just assert that salt morsels must be composed

of oblong and inflexible microscopic particles because this is one way to account for their observed square shape and other properties. Since there are many other ways one could account for these effects, Descartes's explanation appears unsatisfactory. To remedy this, the next claim Descartes makes to Plempius in the above-cited letter is interpreted to allude to a broader hypothetico-deductivist method of which the structural explanations, like the one of salt, are but a part. Right after passage D Descartes informs Plempius: "Indeed, I wanted to explain the latter [e.g. the square shape of salt] through the *former* as effects through a cause, however, by no means to prove, since they would already be sufficiently known, but on the contrary to demonstrate the former through the latter *a posteriori*" (AT I.476–7, emphasis added). "The former" is normally taken to refer back to the microstructure of salt (its inflexible, oblong particles). The sentence as a whole is then taken to express that Descartes never meant to give a causal demonstration of the observed property of salt from the nature of its particles, but rather to confirm this possible cause from the effect already known by the senses. Since Descartes had earlier introduced the properties of material particles as "suppositions", on this reading of the term 'former' he intends to establish his hypothesis that salt consists in oblong, inflexible particles through experiential confirmation that the square shape that one can derive from this hypothetical microstructure is in fact the observed shape of macroscopic (p. 135) salt particles. But this hardly makes Descartes's explanation a mathematical demonstration in any sense. Hence this interpretation is forced to dismiss passages D–G as rhetorical.

But there is a more charitable reading of Descartes's claim to Plempius that clarifies why Descartes would have considered his explanation of salt a paradigmatic *mathematical* demonstration like those found in Aristotelian mechanics. Grammatically, "the former" in the above-quoted sentence can also refer back to the geometrical "principles/axioms" in D from which Descartes claims to deduce the conclusion that the morsels of salt must have square shapes. Plempius had expressed confusion about the *Discourse*, prompting Descartes to explain: "In fact my principles are not those which I propose in the first chapter regarding the nature of light, the shape of the particles of salty and sweet water and similar things, as you seem to object, but rather [these] are conclusions which are demonstrated by all the following" (AT VI.233). So if "the former" in the passage that follows D refers back to "principles" in D, then Descartes's clarification to Plempius shows that he means geometrical principles like "the whole is greater than the part" and "if you take away equals from equals, the remaining ones will be equal", *not* metaphysical principles like the purely extended nature of matter. Descartes thus conceives of his physics like Aristotelian mechanics, which as a mixed mathematical science takes as axiomatic propositions borrowed from the higher science of geometry and then applies them to the shapes and motions of simple machines to deduce the effects that must follow. As Descartes clarifies to Plempius, his physics takes for granted the same geometrical principles, but instead applies them to sensible rather than abstract objects.

To reliably deduce sensible effects, like the square shape of salt morsels, using geometrical principles, Descartes must limit the scope of physics to the consideration of bodies insofar as they have geometrical properties, as these principles will not apply to the colors, tastes, and sounds of bodies. Descartes signals to Plempius that this is what he does:

"However, magnitudes of shape, position and motion must be taken as my *formal* object (as the philosophers use the term), and the physical things, which I explain, as my *material* object" (AT VI.233, emphasis added). Descartes clearly affirms the following claims, but their relation requires interpretation:

> **(1)** All bodies are made up of particles with various geometrical shapes and motions [a general metaphysical claim, supposed in the *Discourse on Method*].
> **(2)** Square shapes can be composed from oblong shapes [a geometrical principle].
> **(3)** Salt grains are square [given by sense perception].

(1) is the universal claim that enables (2) the application of geometrical principles to salt so as to demonstrate (3) the observed properties and actions of salt from its essence. By the standards of *scientia*, to give a proper demonstration of the cause/reason why salt morsels are square Descartes would have to demonstrate *a priori* (from cause to effect) the formal essence of salt relying on the foundational metaphysical premise (1). Descartes explains to Plempius that by (1) he means that his *formal object* (the properties the physicist must investigate in order to understand the physical essence of salt) is certain geometrical properties. Since Aristotelians would deny this, Descartes eventually (p. 136) establishes the metaphysical foundations for it in the *Meditations*. But (1) alone is insufficient to demonstrate the observed salt properties. To apply the geometrical principle in (2) Descartes also needs to prove that the essence of salt consists in oblong shaped (versus another shape) particles. He does not to my knowledge supply such a proof. Instead, the *Discourse* proceeds *a posteriori* (from effect to cause). Descartes supposes the conclusion about the geometrical properties of matter, in general, and the essence of salt particles, in particular. From these suppositions he derives further effects, like other observed properties of salt, to persuade his readers that suppositions like (1) should be adopted because they enable the derivation of a wide range of phenomena via the application of geometrical principles to sensible objects.

For example, in the *Meteorology* Descartes reasons *a posteriori* using these claims (although the *Dioptrics* also exemplifies such reasoning):

> **(a)** Salt is made up of oblong shaped particles [conclusion here supposed].
> **(b)** Oblong shapes that touch a surface on many points are moved less easily than round ones [geometrical principle applied to sensed objects].
> **(c)** Grains of salt are moved less easily than water [undoubted sensed object].

Descartes shows how various observed sensible qualities of salt (e.g. it is harder and less mobile than water) can, by means of premise (a), be derived from the same geometrical principle (2) applied to sensible objects in (b); for example, oblong shaped objects cohere more easily and are moved less easily than round ones since they touch the surface at many points. As he tells Plempius, rather than prove it, he simply supposes his conclusion

(a). Since (c) is obvious from observation, by assuming (a) he can then reason *a posteriori* back to (b), thus lending credibility to his application of this geometrical principle to physics, and indirectly to (1). This reasoning, which Descartes applies to many different physical phenomena, serves to legitimate for readers Descartes's controversial assumption that geometrical properties constitute the formal object of physics and his corresponding application of geometrical principles to physical problems.

3. Conclusion

Although the *Meditations* later argue that matter is essentially extended, Descartes never spells out the deductive steps by which the geometrical essences of specific kinds of bodies, like salt, might be derived *a priori* from this universal metaphysical premise such that geometrical principles apply to essential properties of the material objects of physics. Perhaps he never worked them out to his satisfaction: hence the need to suppose certain microstructures to show readers that applying geometrical principles enables the derivation of many diverse effects. This much is clear: Descartes did not aim at mechanistic explanations. He sought *a priori* demonstrations but gave confusing (to both Plempius and us) examples in his attempt to persuade readers, through *a posteriori* reasoning, that emulating Aristotelian mechanics, which demonstrated the observed (p. 137) effects of machines from geometrical principles, was fruitful. Descartes intends thereby to transfer the certainty of such mechanical demonstrations, which were considered *mathematical*, to physics. To succeed, he must redefine the essence of matter in geometrical terms, which erases the distinction between natural objects and machines.

Sense III, the demonstrative sense, thus explains Descartes's insistence that his physics is *mathematical* (sense IV) and his ontological identification of natural and artificial objects (sense V). Hence it constitutes the core of his mechanical physics. Though it is far removed from the sense in which Newtonian mechanics is mathematical and later explanations are mechanistic, correctly understood, it constitutes a creative and innovative attempt to deploy the geometrical demonstrations of Aristotelian mechanics to preserve the deductive necessity of *scientia*.

References

Aristotle (1987), *Posterior Analytics*, in *A New Aristotle Reader*, ed. J. L. Ackrill. Princeton: Princeton University Press.

Boas Hall, Marie (1981), *The Mechanical Philosophy*. New York: Arno Press.

Clarke, Desmond (1977), "Descartes' Use of 'Demonstration' and 'Deduction' ", *The Modern Schoolman* 54: 333–44.

Downing, Lisa (2005), "Occasionalism and Strict Mechanism: Malebranch, Berkeley, Fontenelle", in Christia Mercer and Eeleen O'Neill (eds.), *Early Modern Philosophy: Mind, Matter and Metaphysics*. Oxford: Oxford University Press, 206–30.

Gabbey, Alan (1993), “Descartes’s Physics and Descartes’s Mechanics: Chicken and Egg?,” in Stephen Voss (ed.), *Essays on the Philosophy and Science of Descartes*. Oxford: Oxford University Press, 311–23.

Gabbey, Alan (2001), “Mechanical Philosophies and Their Explanations”, in Christoph Lüthy, John E. Murdoch, and William R. Newman (eds.), *Late Medieval and Early Modern Corpuscular Theory*. Leiden: Brill, 441–64.

Gaukroger, Stephen (1989), *Cartesian Logic: An Essay on Descartes’s Conception of Inference*. Oxford: Clarendon Press.

Gaukroger, Stephen (2006), *The Emergence of a Scientific Culture and the Shaping of Modernity: 1210–1685*. Oxford: Oxford University Press.

Hattab, Helen (2005), “From Mechanics to Mechanism: The *Quaestiones Mechanicae* and Descartes’ Physics”, in Peter R. Anstey and John A. Schuster (eds.), *The Science of Nature in the Seventeenth Century: Patterns of Natural Change in Early Modern Natural Philosophy*. Dordrecht: Springer, 99–129.

Hattab, Helen (2009), *Descartes on Forms and Mechanisms*. Cambridge: Cambridge University Press.

Janiak, Andrew (2009), *Newton as Philosopher*. Cambridge: Cambridge University Press.

Piccolomini, Alessandro (1565), *In mechanicas quaestiones Aristotelis: Paraphrasis paulo quidem plenior*. Venice.

Recker, Doren (1993), “Mathematical Demonstration and Deduction in Descartes’ Early Methodological and Scientific Writings”, *Journal of the History of Philosophy* 31: 223–44.

Sanches, Francisco (1998), *That Nothing is Known*, ed. Elaine Limbrick and Douglas F. S. Thomson. Cambridge: Cambridge University Press.

Helen Hattab

Deaprtment of Philosophy, University of Houston

Descartes’s Mathematics

Sébastien Maronne

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Abstract and Keywords

This chapter points out some issues about Cartesian geometry and Descartes’s program of solving geometrical problems by means of algebraic analysis. With this aim, it extends the corpus to Descartes’s mathematical correspondence and takes into account recent interpretations. The chapter first concentrates on Descartes’s methodological reflections on the algebraic resolution of geometrical problems like Pappus’s problem or Apollonius’s problem of the three circles, and compares Descartes’s classifications of mathematical problems of 1619 and 1637. It then addresses problems tackled by Descartes in his mathematical Correspondence that question the boundaries set in the *Géométrie* for the application of method. Finally, the method of indeterminate coefficients and its use in Descartes’s method of normals are briefly studied in order to underscore an *Ariadne*’s thread in Cartesian geometry: the elimination of equations. In conclusion, it is claimed that Cartesian geometry is neither the single *Géométrie* of 1637, nor a mere anticipation or deduction of this classic by Descartes, but the collection of *somewhat different* geometries, which are to be found in the mathematical Correspondence or the Latin editions of 1649 and 1659–61.

Keywords: Cartesian geometry, Descartes’s mathematical Correspondence, resolution of geometrical problems, algebraic analysis, method of indeterminate coefficients

(p. 138) 1. Which Mathematics?

WHAT are Descartes’s mathematics?* In order to sketch an answer to this preliminary question, we first need to draw some distinctions about the corpus under study in this chapter. The first distinction pertains to the *textual status* of Descartes’s works that display a mathematical content. We are confronted with a single published text by Descartes himself, the *Géométrie*,[1] which was the last of the three tracts appended to the *Discours de la Méthode* in 1637; the letters, which first circulated during Descartes’s lifetime as original and copy manuscripts, mainly through Mersenne, and then were collected and edited by Clerselier in three volumes from 1657 to 1667;[2] and finally manuscripts, which

Descartes kept to himself, published only posthumously, such as the *Opuscula Posthuma* in 1701 that brought to light the *Regulae ad directionem ingenii*.[3]

The second distinction pertains to the very nature of the mathematical content of Descartes's works. Indeed, we find both texts of methodology (and philosophy) of mathematics, like the *Regulae*, and, symmetrically, texts primarily pertaining to mathematical practice, like the *Géométrie* and several letters of the Correspondence, (p. 139) even if these are accompanied with methodological reflections. It is clear that for Descartes actual mathematical practice was a prerequisite to gaining a true knowledge of mathematics, and consequently of philosophy, as he explains in the *Discours de la méthode* (AT VI.19/ CSM I.120). He writes, for instance, in the third *rule* of the *Regulae*:

> Even though we know other people's demonstrations by heart, we shall never become mathematicians if we lack the intellectual aptitude to solve any given problem. And even though we have read all the arguments of Plato and Aristotle, we shall never become philosophers if we are unable to make a sound judgment on matters which come up for discussion; in this case what we would seem to have learned would not be science but history. (AT X.367/CSM I.13)

Following Descartes's advice, I will concentrate upon texts devoted to mathematical practice and, more precisely, to the resolution of mathematical problems, thus leaving aside texts like the *Regulae*.[4] I will also try to find a middle course between, on the one hand, the themes emphasized by posterity and by a part of historiography (Giusti 1990)—namely, to put it briefly, a theory of algebraic curves—and, on the other hand, the themes that result from the insertion of Descartes's geometry in the ancestral and ongoing tradition of solving geometrical problems that finds its roots in Greek geometry (Bos 2001).[5]

2. The Four Cartesian Geometries

This being said, a global account of all Cartesian mathematical texts would go far beyond the scope of this brief chapter. Since the *Géométrie* has been naturally at the core of studies on Cartesian mathematics,[6] I will mainly consider here Descartes's mathematical Correspondence in order to shed some light on Descartes's mathematical practice before and after the *Géométrie*.

Descartes's mathematical Correspondence forms the second of the four Cartesian Geometries. Although Descartes himself did not publish it (but Clerselier did), it presents Descartes's answers to questions and controversies about his geometry, as well as new mathematical developments stimulated by the various mathematical problems raised by Descartes's friends and opponents. It represents a middle term between the original "French" *Géométrie* of 1637 and the two other Cartesian Geometries: the Latin editions supervised by Frans van Schooten published in 1649 and in 1659–61 (the *Geometriae*). These editions are essential landmarks in the development of the Cartesian methods.

(p. 140) Indeed, Newton and Leibniz mainly learned the new analytic methods from the *Geometria* of 1659–61, and *not* from the *Géométrie*.

One can see the social and mathematical aspects of the *Geometria* in the successful editorial work of Frans van Schooten. As regards the social aspects, Schooten largely contributed to the circulation of the Cartesian methods by teaching, publishing, and especially by creating around himself an active group of researchers composed of those who would later contribute to the second Latin edition of 1659–61: Hudde, de Witt, Heuraet, Huygens.

On the mathematical side, Schooten provided the whole mathematical community of Europe with Cartesian geometry by giving a Latin translation. In addition, by writing a didactic commentary, he made this difficult text more accessible. Lastly, aiming to write a kind of encyclopedia of Cartesian geometry, Schooten gave a more systematic treatment of questions treated in the *Géométrie*, but also developed the field of the theory, sometimes thanks to the mathematicians of his research group whom he encouraged to write treatises which he added to his edition. As a consequence, the size of Cartesian geometry greatly increased throughout the two editions of 1649 and 1659–61, and grew from about a hundred pages for the original *research book* published in 1637, to more than a thousand pages[!] for the *handbook* of 1659–61.

3. The Application of Algebra to Geometry and the Method of Indeterminate Coefficients

One finds quite a surprising judgment given by D'Alembert in his *Discours préliminaire* to the *Encyclopédie* about "Descartes geometer" who would supersede Descartes philosopher. D'Alembert emphasizes two specific features of Cartesian mathematics:[7] the application of algebra to geometry and the method of indeterminate coefficients. This assessment represents quite fairly the common view among eighteenth-century mathematicians about Descartes's original contribution to the development of mathematics:

> One can view Descartes as a geometer or as a philosopher. Mathematics, which he seems to have esteemed lightly, nevertheless today constitutes the most solid and the least contested part of his glory. Algebra, which had been somehow created by the Italians and prodigiously augmented by our illustrious Viète, received new increase in the hands of Descartes. One of the most considerable is his method of indeterminates, a very ingenious and very subtle artifice, which we have since been able to apply to a large number of investigations. But above all what immortalized the name of this great man is the application he was able to make of algebra to geometry, one of the grandest and most fortunate ideas that the human mind has (p. 141) ever had. It will always be the key to the most profound investigations, not only in sublime geometry, but also in all the physico-mathematical sciences.

> As a philosopher he was perhaps equally great, but he was not so fortunate.[8](D'Alembert 1751: xxv; D'Alembert 1963: 22–3)

But *how* does Descartes apply algebra to geometry and mathematics?[9] What is the role played by the method of indeterminate coefficients in algebraic analysis? These are the issues I will address in this chapter by relying, in particular, on Descartes's mathematical Correspondence.

4. The Application of Algebra to Geometry: Descartes and the Solving of Geometrical Problems

The solving of geometrical problems underwent a major change with Descartes's *Géométrie*. This major change dealt not only with a new way of using algebraic analysis. Descartes's *Géométrie* was indeed judged quite harshly by contemporaries like Beaugrand and others as fundamentally a mere development of Viète,[10] whatever its original symbolism based on the exponential notation and its algebra of segments. If we follow Henk Bos, this major change dealt with a new "interpretation of exactness", as regards the construction of geometrical problems, the main question being: what does it mean for a problem to be solved?[11]

Descartes's explanation of the solving of geometrical problems by means of algebraic analysis in the first book of the *Géométrie* is well known:

> If, then, we wish to solve any problem, we first suppose the solution already effected, and give names to all the lines that seem needful for its construction,—to those that are unknown as well as to those that are known. Then, making no distinction between known and unknown lines, we must unravel the difficulty in any way that shows most naturally the relations between these lines, until we find it possible to express a single quantity in two ways. This will constitute an *equation* […].[12](*Géométrie*, 300; AT VI.372)

(p. 142) One then needs to know the roots of such an equation in order to determine the unknown straight lines which are required to construct the solution of the problem. This is exactly Descartes's claim in the first sentence of the *Géométrie*:

> Any problem in geometry can easily be reduced to such terms that a knowledge of the lengths of certain straight lines is sufficient for its construction. (*Géométrie*, 297; AT VI.369)

What does it mean to *know* the "lengths of certain straight lines"? In secondary school algebra, we know the roots of a quadratic equation thanks to the discriminant formula. But we have to keep in mind that Descartes aims to provide a *construction* of the geometrical problem. He thus reduces the construction of a geometrical problem to the construction of an algebraic equation[13] by interpreting the roots of such an equation as the ordinates

of the meeting points of a circle and of another line more or less composed according to the equation degree: quadratic equations are constructed by means of a circle and a straight line in Book I; third- and fourth-degree equations by means of a circle and a parabola; fifth- and sixth-degree equations by means of a circle and the so-called Cartesian parabola, both in Book III.[14]

This classification improved the one recalled by Pappus in his *Mathematical Collection*:[15] indeed, it goes beyond plane (ruler and compass construction for Pappus, equation up to degree two for Descartes) and solid (construction involving conics for Pappus, equation of third and fourth degree for Descartes) problems and is paired with a classification of algebraic curves.

Descartes's construction of geometrical problems is *general*[16] since it applies to a generic equation of which coefficients are supposed to be given (as a result of the algebraic analysis of the problem). This is a striking consequence of Descartes's strategy of reducing the construction of geometrical problems to the construction of algebraic equations. Indeed, one can handle a general (algebraic) equation but it is impossible to consider a general (geometrical) problem. One can only address various particular problems.[17] For instance, one can exhibit a generic quadratic equation but not a general plane problem.

However, once this general construction has been provided, an issue still remains: to *actually* perform the construction of the sought segments for the *particular* problem under study. It seems that Descartes was not interested in addressing this issue. He writes in a letter to Mersenne of 11 June 1640:

(p. 143)

> Concerning the geometrical returns of questions found by algebra, they are always so easy, but also so long and tedious to write, when the questions are worthwhile, that they do not deserve that a man with some knowledge stops at it, and it is only a job fit for the Geostatician [Beaugrand] and people of his kind. (AT III. 82–3)

By "geometrical returns", Descartes refers here to the construction and the demonstration that follow the algebraic analysis. He seems thus to be aware that these steps can be tedious when the problem is worthwhile. Descartes is even clearer in the letter to Elisabeth of November 1643 which deals with Elisabeth's solution of Apollonius's problem of the three circles:

> in substituting but one letter in place of many, just as she has done here quite often, the calculation will not be tedious to her. One can almost always do this when one only wants to see the nature of a problem, that is, to see if it can be solved with ruler and compass, or if it is necessary to employ some other curved lines of the first or the second genus, etc., and which is the path for finding the solution. I ordinarily content myself with doing just this with particular problems. For it seems to me that the surplus, which consists in seeking the construction and the

> demonstration by the propositions of Euclid, and in couching the process in algebra, is nothing but an amusement for little geometers, which does not require much intelligence or much knowledge.[18] (AT IV.46–7; Shapiro 2007: 78–9)

Here, Descartes distinguishes and assesses two parts in the resolution of a problem. By exhibiting an equation, algebraic analysis shows the *nature* of the problem thanks to the classification recalled above.[19] For clarity's sake, one can substitute a single letter to an intricate expression involving *given* segments.[20] This task is adequate and useful for the mind. On the other hand, even if, for rigor's sake, one would have to perform every step of the construction to provide the solution of the problem, it would be inadequate and barren. Indeed, the construction and the demonstration unfruitfully duplicate and hide the algebraic analysis.[21] In conclusion, according to Descartes, the algebraic analysis and the resulting equation alone provide the solution of the problem thanks to the general procedures introduced in the *Géométrie* insofar as we *are able to* perform every step of the construction by means of the algebra of segments.

(p. 144) Let us take two prototypic examples in order to clarify Descartes's views on generality: Pappus's problem (1632–7) and Apollonius's problem of the three circles (1643).

4.1. Pappus's Problem

The so-called "Pappus's problem" is a locus problem which had not been fully solved by Greek geometers according to Pappus, who mentions it in his *Mathematical Collection* (Pappus 1588: 164v–165v). The problem was communicated to Descartes by Golius in the autumn of 1631. We know that it took Descartes five or six weeks to solve it.[22] He then sent his solution to Golius in a "writing" (*écrit*) and commented on it in a letter of [January 1632] (AT I.232–4). Descartes then repeatedly submitted Pappus's problem to other mathematicians.[23] Finally, as is well known, this problem is solved by Descartes in the *Géométrie* (304–14, 323–34; AT VI. 377–87, 396–406), thanks to his algebraic method, and plays a crucial role in the opus.[24]

Four straight lines being given in position, Pappus's problem asks to find the curve whose points are such that, if we draw from them four straight lines making given angles with the four given lines, then the ratio of the rectangle of two of these lines bears a given ratio to the rectangle of the two others. In this case, Pappus says, the points lie on a conic section, but if we consider more than four straight lines by generalizing the problem, "the point lies on loci still not known, but merely called lines". It is thus important to draw a distinction between Pappus's problem in four lines and the *general* Pappus's problem.

Descartes always claimed that he had solved the *general* Pappus's problem. It was crucial for him because his derivation and classification of *all* geometrical curves which he assumed to be Pappusian[25] was grounded in such a solution.

On the other hand, the search for generality and the primacy given to equation over construction also characterize Descartes's solution of Pappus's problem in four lines. Indeed,

Descartes tackles this problem by reducing all cases to the one solved in *La Géométrie* and claims in a letter to Mersenne of 31 March 1638:

> Hence by this single equation of page 326 [of Pappus's problem]
>
> $$y = m - \frac{n}{z}x + \sqrt{mm + ox - \frac{p}{m}xx}$$
>
> (p. 145)
>
> Namely by only changing the marks + and −, or assuming some terms to be null, I include all those that can be related to some plane or solid locus.[26] I do not believe it possible to imagine anything neither more general, nor shorter, nor clearer and easier than that […]. (AT II.84)

4.2. Apollonius's Problem of the Three Circles

Descartes proposed Apollonius's problem of the three circles in 1643 to Princess Elisabeth. This problem asks that a circle be found which touches three given circles. The solution provided by Descartes in his letter to Elisabeth of 17 November 1643 (AT IV.38–42) raises the issue of actually constructing the solution.[27]

Descartes uses three unknowns *x*, *y*, *z* (although he would need just one):

> I do not fear supposing more unknown quantities to reduce the problem to such terms so that it depends only on these two theorems [Pythagoras's theorem and similar triangles theorem]. On the contrary, I prefer to suppose more of them [the quantities] than fewer. For, by this means, I see more clearly all that I do, and in unravelling them I better find the shortest paths and avoid superfluous multiplications.
>
> […] After having made as many equations as I have supposed unknown quantities, I consider whether, from each equation, I can find one in simple enough terms. If I cannot do so, I try to deal with it by joining two or more equations by addition or subtraction. Finally, if this does not suffice, I only examine whether it would be any better to change the terms in some way. For, in making this examination skilfully, one easily comes upon the shortest paths and one can try an infinity of them in very little time. (AT IV.38–40; Shapiro 2007: 73–4)

After having obtained three quadratic equations in *x*, *y*, and *z* by applying Pythagoras's theorem, Descartes eliminates the squares of the unknowns and gets a *linear* system which allows him to derive expressions of *z* and *y* in terms of *x*. This ingenious elimination does not rely upon a diagrammatic analysis but on what Descartes calls the "unravelling of equations".[28]

He then claims one can get a second-degree equation in x, which means that the problem can be solved with ruler and compass, but he does not *actually* carry out either the equation, or the construction. Indeed, such an equation consists of eighty-seven terms![29] As before, according to Descartes, it is useless for the mind to carry out these calculations:

> Finally […] we find an equation where only x and xx are unknown. The problem is thus planar,[30] and it is no longer necessary to go on. For the rest does not serve to (p. 146) cultivate or entertain the mind, but only to exercise the patience of some laborious calculator. (AT IV.42; Shapiro 2007: 76–7)

Descartes does not construct the circle solution. He does not even provide the algebraic equation which corresponds to the geometrical problem: he is content just to determine the nature of the problem. But did he fully solve the problem? Later, mathematicians such as Newton would say no (Guicciardini 2009: 61–78).

4.3. Two Issues

At this point, two related issues arise about Descartes's classification of problems and the application of his method to the solving of *mathematical* problems. The first issue concerns the relationship between Descartes's classification of problems and a theory of algebraic curves that some commentators have pointed out in the *Géométrie*.[31]

Indeed, it is only for fifth- and sixth-degree equations that Descartes needs to introduce a new curve, the cubic parabola which is the solution of a Pappus's problem in five lines, but for most of the problems he addressed, such as, for instance, the classical problems of the insertion of two mean proportionals and of the trisection of an angle, he only needs circle and parabola. Since the first occurrence of geometrical curves studied through their equations is to be found in the *Géométrie*, with Pappus's problem[32] and the method of normals, what is to be said before and after 1637 about geometrical curves?[33]

The second issue concerns the question: what is exactly the scope of Descartes's method? [34] Does this method apply to other kind of problems, for instance *arithmetical* problems or problems involving infinitist considerations for their solution? Indeed, if we only consider the *Géométrie* of 1637, arithmetic, even if its operations are presented in the algebra of segments as a model for those of the geometry,[35] does not provide any problem. In the same way, there are no quadrature or inverse tangent problems. It is noteworthy that, in both cases, we find such problems in Descartes's mathematical Correspondence.

(p. 147) 5. Descartes and Beeckman: A First Classification of Problems in 1619

We find in a letter to Beeckman from 26 March 1619 (AT X.154–60) the first attempt by Descartes to give a classification of problems in mathematics:

> [This] altogether new science would propose a general solution of all possible questions in whatever genus of quantity, whether continuous or discrete, but each according to its own nature. In arithmetic, for example, some questions can be resolved by means of rational numbers, others only with surds, and others yet we can well imagine but not resolve them. Similarly, I hope to demonstrate that in continuous quantity some problems can be resolved only with straight lines or circles, others cannot be resolved except with curved lines that are produced by a single motion—and therefore can be traced by the new compasses that in my view are no less exact and geometrical as the ordinary compasses one uses to trace circles—and others finally can only be solved with curves generated by separate motions that are not subordinated to one another, and which [i.e. the curves] no doubt are only imaginary, such as the notorious quadratrix. And I think that nothing can be imagined whose solution cannot be gotten at least with such lines. But I hope to demonstrate what kind of questions can be resolved in this or that way and not otherwise, so that almost nothing in Geometry will remain to be discovered. This is an infinite task not fit for one person alone. It is incredibly ambitious, but through the obscure chaos of that science I have glimpsed some light, thanks to which the thickest darkness might be dispelled.[36] (AT X.156–8/CSMK 2–3)

In this famous text, which has been commented on at length in historiography,[37] Descartes describes a research program in geometry which is based on a classification of problems built by analogy to arithmetic. Curves are used to construct the solution of problems and provide the classification criteria. The "new compasses" (*circini*), which are introduced in the *Cogitationes Privatae* to divide an angle in any required number of equal parts and to construct cubic equations (AT X. 234–41), are used by Descartes to draw geometrical curves. Descartes's compasses (see Serfati 1993) consist in an arrangement of interconnected moving rulers placed between two arms, one of which rotates while the other remains fixed. Instruments of this kind were already used by Greek and Arabic geometers. Descartes's model could be the *mesolabos* devised by Eratosthenes of Cyrene for the insertion of several mean proportionals and described by Pappus in his *Mathematical Collection* (Pappus 1588: Book III, 5r–v).

(p. 148) Descartes distinguishes three classes of arithmetical problems: problems the solutions of which are rational numbers, irrational roots, and problems that "can be imagined but not solved".[38] Accordingly, we find in geometry problems that can be constructed with straight lines and circles; problems that can be constructed by means of curves arising from a single motion, which are drawn by Descartes's compasses; and problems that can only be constructed by means of "*imaginary* curves" arising from diverse motions not subordinated to each other, like the quadratrix.[39]

If we want to compare such a classification of geometrical problems to that given in the *Géométrie*, it is important to notice, beyond the structural similarities, two important differences. As we have seen, in the *Géométrie* Descartes uses a new *algebraic* ordering criterion: the degree of the equation resulting from the algebraic analysis which determines the curve (straight line, parabola, cubic parabola, etc.) employed with the circle to con-

struct the solution. In the opening of the third book of the *Géométrie* (370–1; AT VI.442–4), Descartes implicitly refers to his ideas of 1619 when rejecting the construction of the insertion of mean proportionals by means of his compasses.

On the other hand, in 1619, Descartes uses cossic notations that are similar to those of Clavius’s *Algebra* (Clavius 1608). This suggests that the original context of Descartes’s first algebraic works was the cossic algebra of Clavius, Roth, and Faulhaber.[40] Finally, several errors in the calculations of the *Cogitationes Privatae* seem to show that at this time Descartes had not mastered the technics of algebraic calculations.

To conclude, this all leads us to qualify the parallelism and to question the continuity between Descartes’s classifications of problems of 1619 and 1637.[41]

6. The Solving of Geometrical Problems in Descartes’s Correspondence: Four Examples

Let us now consider mathematical letters from Descartes’s Correspondence that document Descartes’s methodology in the solving of geometrical problems between 1619 and 1637 and allow us to make a comparison with the *Géométrie*.

(p. 149) 6.1. “A Million Problems”

In a letter from Descartes to Mersenne of 15 April 1630, Descartes proposes to other mathematicians a list of three problems:

> As for the problems, I will send you a million to propose to others, if you wish; but I’m so tired of mathematics, and make so little of it now, that I can no longer take the trouble to solve them myself. I will put three of them here that I once solved without any help other than simple geometry, that is to say with ruler and compass.
>
> *Find the diameter of the sphere tangent to four other givens in magnitude and position*.
>
> *Find the axis of the parabola tangent to three undefined straight lines whose position is given, which also cuts at right angles another undefined straight line whose position is also given*.
>
> *Find the stylus of a solar dial to be inscribed in a given point of the world, such that the extremity of the shadow at a given day of the year passes through three given points—at least when this can be done*.
>
> I could find more difficult problems if I wanted to think about this, but I do not think it is needed. (AT I.139)

This letter documents various aspects of the solving of geometrical problems by Descartes before the *Géométrie*. Here, Descartes denies any interest in mathematics, as he often does,[42] but one should be cautious with the rhetorics involved in this kind of statement.[43] On the other hand, the diversity of the problems' topics and the circulation of these problems in the Cartesian corpus should be underscored.

The first problem of the four spheres, which generalizes Apollonius's problem of the three circles and the third problem on gnomonics, occurs several times in Descartes's mathematics,[44] unlike the second problem, the only problem involving a geometrical curve—a parabola—which is a "*hapax*". On the other hand, the three problems can be solved by ruler and compass: this means that the algebraic analysis would lead to a second-degree equation. As a consequence, there is no need to introduce geometrical (p. 150) curves in the solution, which would go beyond the (classical) conics. Nevertheless, when one looks at the problems' solutions, the algebraic analysis is not straightforward and Descartes precisely considers such problems difficult enough for his rivals. Here, it is the ingenious elimination of equations with several unknowns in an algebraic system (the art of unravelling equations), and *not* the consideration of geometrical curves, which is emphasized in the solving of geometrical problems. We are confronted with another Cartesian Geometry.[45]

6.2. A Construction of Gaudey

In two letters from Descartes to Mersenne, of 8 October 1629 and [13 November 1629],[46] we find interesting comments by Descartes on a construction by a certain Gaudey of the division of a circle into twenty-seven and twenty-nine parts:

> As for dividing circles into 27 and 29, I believe it—mechanically, but not in geometry. It is true that this can be done into 27 using a cylinder, although few people can find a way to do it, but not into 29 or any of the other numbers. And if someone wants to send me the practice [*la pratique*] I dare promise you to show that it is not exact. (AT I.25–6)

> Mr. Gaudey's discovery is very good and very exact in practice. However, so that you should not think I erred in having told you it could not be geometrical, I should tell you that the cylinder is not cause of the effect, as you had led me to believe, and it does no more than a circle or straight line, but that the whole depends on the helix line you had not mentioned. And the helix line is not better accepted in geometry than the one called quadratrix, because it is used to square the circle and even to divide the angle into all sorts of equal parts as well as this one, and for many other uses that you can see in Euclid's *Elements*, as commented by Clavius.[47] Indeed, although we can still find an infinity of points through which the helix and the quadratrix pass, we cannot however find geometrically any of the points that are necessary for the desired effects, as much for the former as for the latter; and we cannot trace them entirely except by the conjunction of two movements that do not depend on one another, or else as regards the helix by means of

> a thread, for turning a thread on a bias around a cylinder describes just such a line; but you can square the circle with the same thread, to the extent that this gives us nothing new in geometry. I keep on appreciating Mr. Gaudey's discovery, and I do not believe that one would be able to find a better one for the same effect. (AT I.70–1)

Descartes's comments are interesting because they point out both a convergence and a discrepancy with Descartes's classification of geometrical curves in the *Géométrie*. In (p. 151) the *Géométrie* (316; AT VI.389–90), geometrical curves are those that can be generated by one or several continuous motions subordinated to one another so that we can have an "*exact* knowledge of their measure". Another criterion used by Descartes concerns the pointwise construction of *any* point of a geometrical curve (*Géométrie*, 339–40; AT VI.411–12). The helix and the quadratrix are mechanical curves because they respect neither of these two criteria. Besides, in the *Géométrie*, the main criterion for geometrical curves is that they can be expressed by an algebraic equation (*Géométrie*, 319; AT VI. 392). Such a criterion allows Gaudey's problems to be solved geometrically, contrary to Descartes's claims in the letters of 1629. In particular, the first problem can be reduced to three consecutive trisections and its algebraic analysis leads to solving cubic equations. It is thus questionable that Descartes had already developed such an equational criterion by 1629. This being said, we find another *positive* criterion for mechanical curves which has been pointed out by Paolo Mancosu:[48] the helix and the quadratrix would be recognized as mechanical curves because they can be used to square the circle.

6.3. Arithmetic and Perfect Numbers

Even if arithmetic seems to play an important role for Descartes, as a *model*, either for the classification of problems in 1619, or for the definition of geometrical operations in the *Géométrie*, the applicability of the method to the resolution of arithmetical problems remains, through the Correspondence, an open question generating different answers. This is especially the case for the problem of multiperfect numbers, i.e. numbers which divide the sum of their aliquot parts, like 120 (which is half the sum of its aliquot parts). In a letter to Mersenne of [early November 1631], Descartes claims not to be interested in such a problem:

> You ask me also that I answer you about whether there is some other number that has the same property as you see in 120. I have nothing to say to this, because I do not know it and I have never wanted to know it, for to investigate such questions typically requires more patience than ingenuity, and they result in nothing useful. (AT I.229–30)

Later, in 1638, Descartes changes his mind and devotes several letters to the resolution of arithmetical problems involving multiperfect numbers.[49] He writes in particular in a letter to Mersenne of 13 July 1638:

> For the way I use to find the aliquot parts, I would tell you that this is nothing less than my analysis, which I apply to this kind of questions, as well as to others, and it would take me some time to explain it in the form of a rule, which could be understood by those who use another method. (AT II.250)

(p. 152) 6.4. A Letter from 1645

Finally, as a conclusion to our review, we will consider a letter to an unknown recipient of [June 1645] (AT IV.227–32), in which is to be found a wealth of mathematical problems on *various* themes proposed by Descartes to challenge his own method. It is remarkable that this letter synthetizes the problems we have presented above, thus giving a maximum extension to the field of application of the Cartesian method in mathematics:

> As regards questions, that of the four globes, you inform me to have sent, is a good one, to test if we have a good knowledge of calculus; but to check the ingenuity of unravelling equations properly,[50] I know no better than that of the three sticks [the *Problema astronomicum*] […]
>
> And to prove the diverse uses of algebra, one could propose concerning numbers: to find a number the aliquot parts of which make the triple. Here are two: 32760, the aliquot parts of which make 98280; and 30240, the parts of which make 90720. One asks for a third, with the way of finding them by a rule; or, if one doesn't want to give the rule, I ask for seven or eight such numbers, because I once sent six or seven to Paris, which may have been divulged.
>
> And concerning curves, one could propose […] this question [which] was proposed to me, five or six years ago, by Mister de Beaune, who also proposed it to the most famous mathematicians of Paris and Toulouse; but I know not if any of them gave him the solution, or if he showed them the one I had sent him. (AT IV.229–30)

It has to be noted that Descartes proposes the inverse problem of tangents submitted by Debeaune in the autumn of 1638,[51] crossing the borders he set in 1637 for geometry. Indeed, the resolution of this problem involves infinitesimal technics.

In all these problems, we have met another Cartesian geometry, somewhat different from the *Géométrie*, which deals with problems with various themes, second-degree equations, and conics. This shows the limits of the understanding of Cartesian geometry through the sole examination of the *Géométrie* of 1637. To solve these problems, Descartes skillfully uses elimination technics for equations in one or several unknowns (the art of unravelling equations). These technics are a key feature of the application of the method of indeterminate coefficients in Descartes's method of normals.

(p. 153) 7. The Method of Indeterminate Coefficients and Descartes's Method of Normals

The method of indeterminate coefficients consists in comparing two equations through their coefficients. The first equation has given coefficients and results from the algebraic analysis of the problem about the object under study (for instance, the parabola). The second equation has indeterminate coefficients and depends on a general problem (for instance, the problem of normals).

The method of indeterminate coefficients plays a key role, though partly hidden, in several places of the *Géométrie*.[52] Its principle is described by Descartes after the method of normals:

> I desire rather to tell you in passing that this method, of which you have here an example, of supposing two equations to be of the same form in order to compare them term by term and so to obtain several equations from one, will apply to an infinity of other problems and is not the least important feature of my general method. (*Géométrie*, 351; AT VI.423)

Let us recall briefly Descartes's method of normals (*Géométrie*, 341–52; AT VI.417–23).[53] Descartes first interprets the normal as the radius of the circle tangent to the curve, the center of which is on the axis of abscissae. Then he claims that such a circle is tangent to the curve if and only if it meets the curve in a double point.

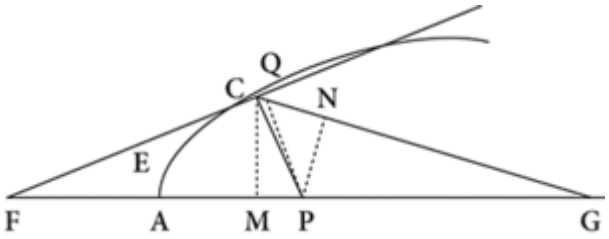


Figure 8.1 Descartes's method of normals (*Géométrie*, 342; AT VI.414).

Let AM = x, CM = y, CP = s and AP = v (see Figure 8.1).

We deduce from Pythagoras's theorem $s^2 = y^2 + (v - x)^2$. Eliminating y between this equation and the curve equation, we get an equation $P(x) = 0$ whose roots are the abscissae of the meeting points between the circle and the curve. In our description above, this is the "first equation".

This equation has a double root when the circle is tangent. We can therefore identify the equation $P(x) = 0$ to the *general* equation with a double root $(x - e)^2 Q(x) = 0$ where (p. 154) $Q(x)$ is a polynomial with indeterminate coefficients. We then derive a system of equations we solve in v and s.

It should be pointed out that these last calculations are strictly algebraic and do not rely on the diagram. For this reason, scholars who claim that Descartes’s *Géométrie* mainly consists of a theory of algebraic curves emphasize the algebraic component of Descartes’s method of normals. Such an interpretation is confirmed by the reception of Cartesian geometry in the second part of the seventeenth century and by the developments of geometry in the eighteenth century that were based on the method of indeterminate coefficients as noted by D’Alembert.

8. Conclusion

In this brief chapter, I have tried to point out some issues about Cartesian geometry and Descartes’s program of solving geometrical problems by extending the corpus and taking into account recent interpretations. I hope to have shown that Cartesian Geometry is neither the single *Géométrie* of 1637 nor a mere anticipation or a deduction of this classic carved in a white marble by Descartes. Coming back to my initial textual description, anyone will immediately notice that I have left aside many texts that would undoubtedly have led to pointing out other asperities in the marble. Nowadays easy access to early modern mathematical printed books and manuscripts, for the delight of Cartesian scholars, promises to confirm that there are facets of Cartesian geometry that are still to be known and clarified.

References

D’Alembert, Jean-Baptiste le Rond (1751), “Discours préliminaire”, in *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers*. Paris: Briasson, i–xlv.

D’Alembert, Jean-Baptiste le Rond (1963), *Preliminary Discourse to the Encyclopedia of Diderot*, trans. Richard Schwab. Chicago: University of Chicago Press.

Beeckman, Isaac (1939–53), *Journal tenu par Isaac Beeckman de 1604 à 1634*, introduction and notes by C. de Waard, 4 vols. The Hague: Martinus Nijhoff.

Bos, Henk J. M. (1981), “On the Representation of Curves in Descartes’ Géométrie”, *Archive for History of Exact Sciences* 24: 295–338.

Bos, Henk J. M. (1984), “Arguments on Motivation in the Rise and Decline of a Mathematical Theory: The ‘Construction of Equations’, 1637–ca. 1750”, *Archive for History of Exact Sciences* 30: 331–80.

Bos, Henk J. M. (1990), “The Structure of Descartes’ Géométrie”, in Giulia Belgioioso (ed.), *Descartes, Il metodo e i saggi: Atti del Convegno per il 350e anniversario della pubblicazione del Discours de la Méthode e degli Essais*, 2 vols. Firenze: Armando Paoletti, 349–69. [Republished in Henk J. M. Bos (1993), *Lectures in the History of Mathematics*. Providence, RI: American Mathematical Society, 37–57.]

Bos, Henk J. M. (2001), *Redefining Geometrical Exactness: Descartes' Transformation of the Early Modern Concept of Construction*. New York, Berlin, Heidelberg: Springer-Verlag.

(p. 155) Bos, Henk J. M. (2003), "Descartes, Elisabeth and Apollonius' Problem", in Theo Verbeek, Erik-Jan Bos, and Jeroen van de Ven (eds.), *The Correspondence of René Descartes 1643*. Utrecht: Zeno Institute of Philosophy, 202–12.

Clavius, Christoph (1608), *Algebra*. Roma: apud Bartholomaeum Zannetum.

Costabel, Pierre (1985), "Descartes et la Mathématique de l'Infini", *Historia Scientiarum* 29: 37–49.

Costabel, Pierre (1990), "La Géométrie que Descartes n'a pas publiée", in Giulia Belgioioso (ed.), *Descartes, Il metodo e i saggi: Atti del Convegno per il 350e anniversario della pubblicazione del Discours de la Méthode e degli Essais*, 2 vols. Firenze: Armando Paoletti, 371–85.

Descartes, René (1637), *La Géométrie*, in *Discours de la méthode pour bien conduire sa raison et chercher la vérité dans les science; plus la dioptrique, les météores, et la géométrie qui sont des essais de cette méthode*. Leyde: Jean Maire, 297–413. [Abbreviated as "*Géométrie*".]

Descartes, René (1649), *Geometria a Renato Des Cartes anno 1637 gallice edita, nunc autem cum notis Florimondi de Beaune*, first Latin edition, ed. Frans van Schooten. Leiden: Jean Maire.

Descartes, René (1657–67), *Lettres de M. Descartes*, ed. Claude Clerselier, 3 vols. Paris: Angot.

Descartes, René (1659–61), *Geometria a Renato Des Cartes anno 1637 gallice edita, postea autem una cum notis Florimondi de Beaune*, second Latin edition, ed. Frans van Schooten. Amsterdam: Elsevier.

Descartes, René (1954), *The Geometry of Rene Descartes with a facsimile of the first edition*, trans. David E. Smith and Marcia L. Latham. New York: Dover Publications.

Descartes, René (1987), *Exercices pour les éléments des solides: Essai en complément d'Euclide: Progymnasmata de solidorum elementis*, ed. Pierre Costabel. Paris: Presses Universitaires de France.

Descartes, René (2009), "La Géométrie", introduction and notes by A. Warusfel, in Jean-Marie Beyssade and Denis Kambouchner (eds.), *Œuvres complètes III: Discours de la Méthode et Essais*. Paris: Gallimard, 393–512 and 702–75.

Descotes, Dominique (2005), "Aspects littéraires de la Géométrie de Descartes", *Archives Internationales d'Histoire des Sciences* 55: 163–91.

Federico, Pasquale Joseph (1982), *Descartes on Polyhedra: A Study on the De Solidorum Elementis*. New York, Heidelberg, Berlin: Springer.

Galuzzi, Massimo (1980), "Il Problema delle Tangenti nella 'Géométrie' di Descartes", *Archive for History of Exact Sciences* 22: 37–51.

Giusti, Enrico (1990), "Numeri, grandezze e Géométrie", in Giulia Belgioioso (ed.), *Descartes, Il metodo e i saggi: Atti del Convegno per il 350e anniversario della pubblicazione del Discours de la Méthode e degli Essais*, 2 vols. Firenze: Armando Paoletti, 419–39.

Guicciardini, Niccolò (2009), *Isaac Newton on Mathematical Certainty and Method*. Cambridge, MA: MIT Press.

Houzel, Christian (1997), "Descartes et les courbes transcendantes", in Roshdi Rashed and Joël Biard (eds.), *Descartes et le Moyen-Âge*. Paris: Vrin, 27–35.

Jullien, Vincent (1996), *Descartes: La Géométrie de 1637*. Paris: Presses Universitaires de France.

Jullien, Vincent (1999), "Les frontières dans les mathématiques cartésiennes", *Historia Scientiarum* 8: 211–38.

Mancosu, Paolo (1992), "Descartes's Geometry and Revolutions in Mathematics", in D. Gillies (ed.), *Revolutions in Mathematics*. Oxford: Oxford University Press, 83–116.

Mancosu, Paolo (2007), "Descartes and Mathematics", in Janet Broughton and John Carriero (eds.), *A Companion to Descartes*. Malden, MA: Blackwell, 103–23.

Mancosu, Paolo, and Andrew Arana (2010), "Descartes and the Cylindrical Helix", *Historia Mathematica* 37: 403–27.

(p. 156) Manders, Ken (2006), "Algebra in Roth, Faulhaber, and Descartes", *Historia Mathematica* 33: 184–209.

Maronne, Sébastien (2010a), "The Ovals in the *Excerpta Mathematica* and the Origins of Descartes' Method for Normal", *Historia Mathematica* 37: 460–84.

Maronne, Sébastien (2010b), "Pascal versus Descartes on Solution of Geometrical Problems and the Sluse-Pascal Correspondence", *Early Science and Medicine* 15: 537–65.

Maronne, Sébastien (2018), "Une autre Géométrie de Descartes: le problème des trois bâtons ou comment bien démêler les équations", in Thibault Gress (ed.), *Cheminer avec Descartes*. Paris: Classiques Garnier, 313–41.

Mehl, Édouard (2001), *Descartes en Allemagne, 1619–1620: Le contexte allemand de l'élaboration de la science cartésienne*. Strasbourg: Presses universitaires de Strasbourg.

Mersenne, Marin (1945–86), *Correspondance du P. Marin Mersenne, religieux minime*, ed. C. de Waard, P. Tannery, and A. Beaulieu. Paris: Presses Universitaires de France/CNRS.

Panza, Marco (2011), "Rethinking Geometrical Exactness", *Historia Mathematica* 38: 42–95.

Pappus of Alexandria (1588), *Pappi Alexandrini mathematicae collections a Federico Commandino Urbinate in latinum conversae at commentariis illustratae*, trans. and ed. F. Commandino. Pesaro.

Rabouin, David (2010), "What Descartes Knew of Mathematics in 1628", *Historia Mathematica* 37: 428–59.

Rabouin, David (2016), "Mathesis universalis et algèbre générale dans les Regulae ad directionem ingenii de Descartes", *Revue d'histoire des sciences* 69: 259–309.

Rabuel, Claude (1730), *Commentaires sur la Géométrie de M. Descartes*. Lyon: Marcellin Duplain.

Rashed, Roshdi (1997), "La Géométrie de Descartes et la distinction entre courbes géométriques et courbes mécaniques", in Roshdi Rashed and Joël Biard (eds.), *Descartes et le Moyen-Âge*. Paris: Vrin, 1–22.

Rashed, Roshdi (2005), "Les premières classifications des courbes", *Physis* 42: 1–64.

Sasaki, Chikara (2003), *Descartes's Mathematical Thought*. Dordrecht, Boston, London: Kluwer Academic Publishers.

Schneider, Ivo (2008), "Trends in German mathematics at the time of Descartes' stay in southern Germany", in M. Serfati and D. Descotes (eds.), *Mathématiciens français du XVII^{e} siècle: Descartes, Fermat, Pascal*. Clermont-Ferrand: Presses Universitaires Blaise Pascal, 45–67.

Serfati, Michel (1993), "Les compas cartésiens", *Archives de philosophie* 56: 197–230.

Serfati, Michel (2005), "René Descartes, Géométrie", in I. Grattan-Guinness (ed.), *Landmark Writings in Western Mathematics, 1640–1940*. Amsterdam: Elsevier, 1–22.

Shapiro, Lisa (2007), *The Correspondence between Princess Elisabeth of Bohemia and René Descartes*. Chicago and London: University of Chicago Press.

Vuillemin, Jules (1960), *Mathématiques et Métaphysique chez Descartes*. Paris: Presses Universitaires de France.

Notes:

(*) I would like to thank Erik-Jan Bos, David Rabouin, and Frédéric Voilley for their helpful comments.

([1]) Descartes 1637.

([2]) See Descartes 1657–67. One finds the mathematical letters edited in particular in the third volume published in 1667.

([3]) These texts are edited in the tenth volume of Adam and Tannery's edition (AT). They are anterior to the publication of the *Géométrie* in 1637. These are the *Cogitationes privatae* which date from 1619–21; the *Progymnasmata de solidorum elementis* (for a commented edition, see Descartes 1987; Federico 1982); and the *Excerpta Mathematica* published for the first time in the *Opuscula Posthuma* in 1701. In addition, we find transcriptions made by Beeckman in his *Journal* in 1628–9 (AT X.331–48; Beeckman 1939–53: III, 94–9 and IV, 135–9).

([4]) On the *Regulae ad directionem ingenii* and young Descartes's mathematics, see Rabouin 2016.

([5]) On this tension between tradition and modernity in Descartes's geometry, see Mancosu 1992.

([6]) See Bos 1990, 2001: 285–397, Descotes 2005, Jullien 1996, Mancosu 1992, 2007, and Serfati 2005. See also the two commented editions Descartes 1954 and Descartes 2009 as well as the belated but very useful commentary of Rabuel 1730.

([7]) In the eighteenth century, geometry is synonym of mathematics.

([8]) I quote, with some changes, the English translation of Richard Schwab in D'Alembert 1963.

([9]) I will show in the following that it has been an issue for Descartes to apply his method (or rather to claim that the mathematical technics he employs depend on his method) to problems pertaining to arithmetic or involving infinitist methods.

([10]) See the letter of Descartes to Mersenne of 31 March 1638: "For the accusation of the Geostatician, that I give nothing about equations than Viète would have given in a more scholarly way" (AT II.82).

([11]) To study how Descartes transformed the early modern concept of construction is precisely the goal of Bos (2001). On the issue of geometrical exactness, see also Panza 2011.

([12]) Here and elsewhere, I quote the translation of Smith-Latham in Descartes 1954 and specify the pagination of the original publication in Descartes 1637.

([13]) On the history of the "construction of equations" in early modern mathematics, see Bos 1984.

([14]) See *Géométrie* (302–3, 389–95, and 402–11; AT VI.374–6, 464–9, and 476–84). For a detailed study, see Bos 2001 (363–81).

([15]) Pappus (1588: Book III, 4v and Book IV, 61r–v). For a study, see Bos 2001: 37–57.

([16]) Descartes entitles the section devoted to the construction of solid problems "*general* method for constructing all solid problems which *reduce* to an equation of the third or the fourth degree" (*Géométrie*, 389; AT VI.464).

([17]) Giusti (1990) has pointed out the same fact for curves.

([18]) Here and in the following quotations, I have modified Shapiro's translation.

([19]) *Géométrie*, 319; AT VI.392. See Bos 2001: 355–62.

([20]) For instance, Descartes uses this strategy to study the equation of Pappus's locus in the *Géométrie*, 326; AT VI.399.

([21]) In his tract entitled *De concinnandis Demonstrationibus Geometricis ex Calculo Algebraïco* which ends the second Latin edition (Descartes 1659–61: II.341–420), van Schooten claims on the contrary that algebra produces "harmonious" geometrical demonstrations, and thus tends to liken algebraic analysis to the classical analysis of Ancient geometers. Such a discrepancy between Descartes's program and van Schooten's own interpretation is not unique in the Latin editions. For instance, we also find surprisingly a note by Schooten on the cycloid and its tangents (Descartes 1649: 223–9) based on Descartes's solution given in the letter to Mersenne of 23 August 1638 (AT II. 307–13), as well as Fermat's method of tangents applied to the problem of the normal to the conchoid (Descartes 1659–61: I.253–5).

([22]) See the letter of Descartes to Mersenne of [5 April 1632] (AT I.244). Here and in the rest of the chapter, dates in square brackets refer to a dating by Adam and Tannery.

([23]) For instance, Descartes submitted Pappus's problem to Beaugrand and Roberval through Mersenne as well as to Stampioen (AT I.244, 256, 278).

([24]) I will not address this issue here for the sake of brevity. For more information, one may consult numerous studies: Bos 2001: 313–34; Jullien 1996: 95–101; Vuillemin 1960: 99–112.

([25]) 'Pappusian' means solution of a Pappus's problem. It has been known since Newton that such a statement is false by comparing the number of coefficients of a generic algebraic curve of order n and of a Pappus's problem of $2n$ lines: see Bos (1981: Appendix, 332–8). In Rashed (2005: 46–8), one finds a very nice counterexample of a quartic which is not Pappusian, a Cassini oval.

([26]) Indeed, one of the chief aims of Descartes's solution is to show that any solid problem is reducible to the four lines Pappus's problem.

([27]) For more details about Descartes's solution, see Bos 2003 and Maronne 2010b.

([28]) "*Démêler les équations*". See also Descartes's letter of June 1645 (AT IV.228) which is quoted below.

([29]) See Bos 2003: 205.

([30]) That is, it can be solved with ruler and compass according to Pappus's classification.

([31]) This is especially the case of Giusti (1990).

([32]) According to Henk Bos, Pappus's problem "in the development of Descartes' thinking on geometry the problem was […] the *crucial catalyst* [that] provided him, in 1632, with a new ordered vision of the realm of geometry and […] shaped his convictions about the structure and the proper methods of geometry" Bos 2001: 283.

([33]) With the notable exception of the ovals in the *Excerpta Mathematica* in which Descartes solves an inverse tangent problem on ovals and alludes to a method of tangents: see Maronne 2010a.

([34]) On these "borders" of Cartesian geometry, see Jullien 1999.

([35]) "How the calculations of arithmetic are related to the operations of geometry": *Géométrie*, 297; AT VI.369.

([36]) For the letters of 1619–32, I use the English translation of Roger Ariew, to be published in the forthcoming first volume of a new edition of Descartes's Correspondence supervised by Erik-Jan Bos and Theo Verbeek. The other English translations of the mathematical letters are mine.

([37]) See for instance Bos 2001: 231–53 and Sasaki 2003: 95–108.

([38]) In the *Géométrie* (380; AT VI.453–4), the "imaginary roots" refer to complex roots of algebraic equations.

([39]) Later, in the *Géométrie* (317; AT VI.390), these curves will be called "mechanical" and rejected from geometry. On the distinction between geometrical and mechanical curves in the *Géométrie*, see Rashed 1997.

([40]) On the relations between Descartes and the German cossists, see Mehl 2001; Manders 2006; Schneider 2008.

([41]) In the same perspective, Rabouin (2010) questions the *actual* mathematical practice of Descartes before the *Géométrie* thanks to a careful study of the texts at our disposal.

([42]) See for instance Descartes's letter to Mersenne of 12 September 1638: "But do not expect anything else from me, if you please, in geometry, as you know that I have been protesting for a long time that I no longer wish to practice it, and I think I can honestly put an end to it" (AT II.361–2).

([43]) For a stimulating *literary* analysis of Descartes's mathematics *and* rhetorics in the *Géométrie*, see Descotes 2005.

([44]) A related problem on tangent spheres is solved in the “Introduction à la Géométrie” presumably written by van Haestrecht; for an edition, see Mersenne 1945–86: VII, 453–62. Descartes mentions this problem in other mathematical letters: see, for instance, the letter to Stampioen of (the end of) 1633 (AT I.277). The problem on gnomonics generalizes a problem of the *Cogitationes Privatae* (AT X.229) and is also related to the *Problema astronomicum* later raised by Stampioen and solved by Descartes in the frame of the heated controversy of 1639–40 in the *Den On-Wissen Wis-konsteaner* (Leiden: 1640) published by Jacob Waessenaer. The problem, together with Descartes’s solution, has been edited by Schooten in an *Additamentum* in Descartes 1649 (295–323) and 1659–61 (I.369–89). For a historical and mathematical analysis of the *Problema astronomicum*, see Maronne 2018.

([45]) See Costabel 1990.

([46]) On these letters, see Mancosu and Arana 2010.

([47]) This is one of the rare references by Descartes to his sources, which confirms that he was trained in mathematics by reading the works of Clavius. We also know that Descartes read Clavius’s *Algebra* (Clavius 1608).

([48]) See Mancosu 1992: 96–9 and 2007: 117–21.

([49]) Compare for instance with Descartes’s letter to Mersenne of 31 March 1638 (AT II. 91–4).

([50]) *L’industrie de bien desmeler les équations*.

([51]) See the letter to Debeaune of 20 February 1639 (AT II.514–17). For a study of Descartes’s solution and, more generally, of Descartes’s considerations on *and* contributions to infinitesimal geometry, see Vuillemin 1960: 11–25, Costabel 1985: 44–5, and Houzel 1997: 32–4.

([52]) See Bos 2001: 318–24, 363–72.

([53]) On Descartes’s method of normals, see Galuzzi 1980; Vuillemin 1960: 57–65.

Sébastien Maronne

Institute of Math, University of Toulouse

Descartes and Medicine

Gideon Manning

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Abstract and Keywords

This chapter answers three basic questions: why did Descartes come to study medicine; how, as an untrained student of medicine, did he approach the discipline; and, finally, how did he propose to heal the body and soul? Starting in the 1620s, when his interests in optics prompted Descartes to study the anatomy of the eye and brain, through to his correspondence with Elisabeth in the 1640s, when he assumed the role of a corresponding physician against the backdrop of his mature metaphysics and natural philosophy, medicine is shown to be intimately connected to Descartes's philosophical project as well as his practical aspirations.

Keywords: medicine, anatomy, optics, metaphysics, natural philosophy

(p. 157) 1. The Medical Question

FROM Descartes's 1637 *Discourse on Method*, which lists "difficulties pertaining to medicine" among its content, to the 1649 *Passions of the Soul*, with its opening summary of human anatomy and physiology, medicine makes frequent appearances in Descartes's published work (*Discourse*, AT VI.1/CSM I.111, *Passions*, Part I, AT XI.327–70/CSM I.328–48). His correspondence tells a similar story. In a letter from 1645, Descartes explains, "the preservation of health has always been the principal end of my studies", and the subtitle chosen for the 1657 first edition of his correspondence lists "the most important questions of … medicine" among its content (Letter to Newcastle, October 1645, AT IV.329/CSMK 275). Adding that in 1633 Descartes was considered for a professorship in theoretical medicine at the University of Bologna further confirms that he was a serious student of medicine and was so recognized by his contemporaries (Manning 2014).[1]

Indeed, medicine can be used to illuminate the character of Descartes's physics (or natural philosophy), moral philosophy, reliance on authority, philosophy of mind, metaphysics, unified view of knowledge and method, and his reception, among other prominent topics in Descartes studies. Many of these topics are covered elsewhere in this (p. 158) Hand-

book and, in any case, it is a *desideratum* that we understand why Descartes came to study medicine as well as the content of his medical views, before medicine can be used to understand the other parts of his philosophical project. I will limit my discussion to the three goals of showing: why Descartes came to study medicine; how he approached medical science; and how he proposed to heal the body and soul.

2. From Optics to Anatomy and Physiology

In spite of medicine's importance to Descartes, the precise moment at which it gained his attention has proven difficult to determine. Our most reliable evidence comes from 1629.[2] In correspondence, Descartes expresses a desire "to study anatomy", which culminates in later claims of trying to discover "a system of medicine based on infallible demonstrations", "studying chemistry and anatomy simultaneously", and an effort to "discover something useful in medicine" (Letters to Mersenne, 18 December 1629, AT I.102, January 1630, AT I.106, 15 April 1630, AT I.137, 25 November 1630, AT I.180). The question answered in this section is a simple one: what led Descartes to study anatomy in 1629?

Though a simple question, the answer is complex and, at first glance, overdetermined. After all, health and disease, and medicine generally, were preoccupations of the early modern period, with medicine appearing with regularity in legal cases, personal diaries, and correspondence throughout Europe (Lindeman 2010: 243ff.). In the universities, the study of nature was also linked to medicine (Siraisi 1990: 48–114; Cook 1990). Physics textbooks invariably included an account of living things, moving from the general principles in the study of nature to nature's particulars, including plants, animals, the human body, and the human soul to the extent that it animated the body (Schmitt 1988; Serjeantson 2011: 119–22). These same textbooks often appealed to medical knowledge, accepting in the process that the structure of living things was both relevant to natural philosophy and something learned through anatomical dissection (Edwards 2008, 2012). Thus, as Descartes's ambitions grew in 1629 to include an explanation for "all the phenomena of nature" without appeal to "animal souls and other forms and qualities", medical study would naturally be included (Letters to Mersenne, 13 November 1629, (p. 159) AT I.70/CSMK 7, 27 May 1630, AT I.154/CSMK 26). From this perspective, there is therefore no need to explain Descartes's interest in medicine or what led him to it beyond his more general interest in physics. Put another way, given Descartes's stated ambition for his physics, had he not expressed interest in medicine that would be something worth explaining.

Still, if we limit ourselves to what we know of Descartes's intellectual development—to his texts and correspondence—we can be more precise about his motivations. It is well known that the late 1620s was an important period for Descartes, coming after his conversation with Cardinal Bérulle in Paris and coinciding with his return to the Netherlands. It was at this time that Descartes transformed into an ambitious natural philosopher with an explicit metaphysics supporting his efforts (for discussion, see Rodis-Lewis 1990: 88; Garber 1992: 50–62; cf. Menn 2002: 214–16). With regard to medicine, howev-

er, what matters most is not Descartes's expansive interest in nature or his metaphysics, though these are relevant, but rather motivations internal to his treatment of mathematical optics. In the remainder of this section, I cite Descartes's account of his own development and then detail, more specifically, how his *Dioptrics* incorporated anatomy and anatomical experiment. This provides an answer to the question of what led Descartes to anatomy in 1629.

In part V of the *Discourse*, Descartes recalls and then summarizes his earlier scientific efforts and achievements. He describes, in particular, how work that began in optics in the 1620s developed into a treatise on light and then expanded into a compendium of natural philosophy, including a final section on "man" (*Discourse*, AT VI.42/CSM I.132). His correspondence from the 1620s describes his expanding project in exacting detail. In October 1629, two months before he declared his intent to study anatomy, Descartes wrote of his decision "to write a little treatise on the topic" of sublunary phenomena that "will give the explanation of the colours of the rainbow … [but] I have not yet begun to write and I am in no hurry" (Letter to Mersenne, 8 October 1629, AT I.23/CSMK 6). A month later, and one month before his turn to anatomy, Descartes is of a different view, anticipating a treatise that would take more than a year to write and stating that, rather "than explaining just one phenomenon I have decided to explain … the whole of physics" (Letter to Mersenne, 9 November 1629, AT I.70/CSMK 7).

Three years later, in 1632, and still five years before the *Discourse*, the "whole of physics" expanded yet again for Descartes:

> My discussion of man in *The World* will be a little fuller than I had intended, for I have undertaken to explain all the main functions in man. I have already written of the vital functions, such as the digestion of food, the heart beat, the distribution of nourishment, etc., and the five senses. I am now dissecting the heads of various animals, so that I can explain what imagination, memory, etc. consist in. I have seen the book *De Motu Cordis* which you previously spoke to me about. I find that it differs slightly from my own view, although I saw it only after having finished writing on this topic. (Letter to Mersenne, November or December 1632, AT I. 263/CSMK 40)

(p. 160) Anatomy, physiology, and a text of learned medicine—Harvey's *On the motion of the heart*—are all mentioned here. Descartes links them all to his growing project that began with optical phenomena but now includes "all the main functions in man".[3]

But to ask our initial question again, now in slightly different terms: how did Descartes go from rainbows and prisms to the blood, guts, and brains of living things? The best known results of Descartes's optical studies between 1625 and 1628 are of little help in answering this question. These include the discovery of the law of refraction (the sine law), insights into the geometry and manufacture of lenses, speculations about the use of telescopes and, in the case of the rainbow and his mechanical account of color, an astoundingly sophisticated experiment combining modeling of invisible phenomena with quantitative techniques heralding Newton's quantitative physics later in the century (Buchwald

2008; for general discussion, see Osler 2008). While none of these technical results connects optics to medicine and anatomy in an obvious way, it is because human beings "observe" luminous bodies, as Descartes explains in the *Discourse*, that anatomy becomes relevant (*Discourse*, AT VI.42/CSM I.132). In other words, the suggestion I will be making is that Descartes's theory of vision prompted him to study anatomy.

This motivation would not be unique to Descartes. In 1604, Kepler published *Ad Vitellionem Paralipomena*, a work in which the eye is shown to be an optical instrument (a camera obscura) that could be productively studied independently from the rest of the body. Inspired by an anomaly in astronomical observation related to pinhole images, Kepler explained how the eye's lens focuses rays of light coming from objects into the eye, producing an inverted image of the visual field.[4] In the last chapter of *Paralipomena*, in a series of claims that Descartes knew well, Kepler discussed image formation by detailing the eye's anatomical structure, arguing that the retina, instead of the lens, was the sensitive part of the eye receiving a picture of the outside world. In making these claims, Kepler did not hesitate to cite medical authors (e.g. Kepler 1604: 204, 208). He even proposed an anatomical experiment that might confirm the existence of an inverted retinal image (Kepler 1604: 170; for discussion see Vanagt 2012). Roughly, the idea was to impose a white surface at the back of an eye carefully dissected so as to preserve its structural integrity. Achieving this, Kepler predicted that we would see the "picture" of the visual field on the imposed surface.

(p. 161) Descartes read Kepler's *Paralipomena* with great care beginning around 1620 (AT X.242–3; for discussion see Schuster 2000).[5] Yet even after being convinced of the existence of the retinal image, there remained for Descartes many issues still to be worked out, including several that confronted Kepler as well (Hatfield 1992: 352–3). For example, Descartes still needed to explain the transmission of the image on the sensitive surface of the eye to the common sense, i.e. to that "inner sense" where our varied sensory inputs—from our five external senses—are unified and sensed as one. His scholastic predecessors posited the transmission of the received pattern from the sensitive part of the eye in a fashion that simply retold the initial story of image formation (Spruit 1994). This option was not available to Descartes owing to his preference for mechanical explanation, dating from his time with Beeckman (about whom, see van Berkel et al. 1999: 410–13; van Berkel 2013). Nor could Descartes follow Kepler, who still conceived of color as a "real quality" and the retinal image as a full-color pictorial representation (Kepler 1604: 169–70; for discussion, see Bellis 2016: 134–5).[6] Thus, accepting that rays of light coming from objects form a retinal image, Descartes's optics remained incomplete so long as he lacked answers to the transmission questions: what was transmitted from the eye to the common sense and how was it transmitted?

Descartes published his answers to these questions in the *Dioptrics* accompanying the 1637 *Discourse*. We already know from his correspondence that Descartes developed his theory of vision more fully in *The World* and, one should add, in general outline in Rule 12 of the earlier *Rules for the Direction of the Mind* (*Rules*, AT X.410–30/CSM I.39–51). But Descartes's readers still learned a great deal from the *Dioptrics*, beginning with the dis-

cussion of the eye's structure in the third discourse. Subsequent discourses present Descartes's full theory of vision along with relevant anatomical details. At the outset of discourse four, for example, Descartes identifies three commitments we all supposedly share. First, he reminds us we "know sufficiently well that it is the soul which senses, not the body". Second, we know that "it is in the brain, where [the soul] exercises that faculty which is called common sense".[7] And finally, we also "know that it is through the medium of the nerves that impressions which objects cause in the external members are transmitted to the soul in the brain" (*Dioptrics*, AT VI.109/PO 87, substituting "soul" for "mind" in the translation).

(p. 162) This much might be considered a generic statement of the anatomy relevant to optics. Yet Descartes's familiarity with medical sources and his confidence that he has surpassed even trained anatomists is clear from his next claim:

> in order to understand in greater detail how the soul, located in the brain, can thus receive impressions of external objects through the mediation of the nerves, it is necessary to distinguish three things in these nerves … [which] the anatomists and doctors sufficiently acknowledge … [although] no one among them has adequately distinguished their use. (*Dioptrics*, AT VI.109–10/PO 87–8)

Descartes has read the "anatomists and doctors" but he will be enlightening us about the functions of the components of the nerves in a way his predecessors have not. This will be his contribution.[8]

These passages are among Descartes's most detailed references to hands-on anatomy and physiology published in his lifetime and, not for the first time, he trumpets his personal achievements. In discourse four he states that cutting the nerves (the optic nerve being the largest in the body) shows three distinct parts: an outer membrane, an inner filament, and a substance, the "animal spirits", that separates and lubricates the outer and inner layers, allowing the inner tube and its encased filaments to move smoothly within the outer membrane. He returns to the retinal image in discourse five of the *Dioptrics*, warning that "in order to perceive, the mind need not contemplate any images resembling the things that it senses" (AT VI.115/PO 91). Instead of a literal picture, as Kepler argued, Descartes claims a mechanical impulse generated by the contact pressure of light forms a pattern on the retina and this impulse pattern is carried as a mechanical disturbance through the filaments of the optic nerve to the common sense. The soul then perceives the pattern, and only at this moment does conscious sense experience take place. This account of visual perception serves as the prototype for all the other external senses for Descartes, where transmission occurs to the common sense through the nerves without the transmission of a real entity.

In the fifth discourse Descartes also highlights his hands-on anatomical experience.[9] He writes that we "will be even more certain" that an image is formed on the back of the eye "if, taking the eye of a newly deceased man, or, for want of that, of an ox or some other large animal, you carefully cut through to the back the three membranes which (p. 163) enclose it". Next, cover "it over with some white body thin enough to let the daylight pass

through it, as for example with a piece of paper or with an eggshell … [and] place this eye in the hole of a specially made window". The window lets in light and the room in which we are meant to stand is dark. These conditions met, if we "look at that white body … [we] will see there, not perhaps without admiration and pleasure, a picture which will represent in natural perspective all the objects which will be outside" the window (*Dioptrics*, AT VI.115–18/PO 91–3). He concludes, "having thus seen this picture in the eye of a dead animal, and having considered its causes, you cannot doubt that an entirely similar one is formed in the eye of a live man, on the" retina (*Dioptrics*, AT VI.124/PO 97). In other words, Descartes's anatomical experiment confirms the existence of the retinal image just as Kepler had indicated it would.

The connection between Descartes and Kepler is undeniable here. It might even lead one to infer that Descartes simply read Kepler and then, in the process of systematically mechanizing Kepler's optics, Descartes chose to perform the experiment proposed in the last chapter of *Paralipomena*. This inference should be avoided, however, for there were intermediaries Descartes does not mention, including the anatomist Vopiscus Fortunatus Plempius. Plempius is best known to philosophers for his correspondence with Descartes after the publication of the *Discourse* (Petrescu 2013; Schmaltz 2017: 233ff.). Yet Plempius almost certainly instructed Descartes in anatomy and, most importantly for understanding the character of Descartes's anatomical studies, Plempius's (1632) *Ophthalmographia* is a work on the anatomy, physiology, and pathology of the eye.[10]

It was in this work that Plempius explains "how vision truly occurs", inviting readers to "come and enter with me into a dark room" (Plempius 1632: 131). The room we enter is none other than the room Descartes describes in discourse five of the *Dioptrics*. Influenced by Kepler's mathematical demonstrations, Plempius saw the eye as an instrument forming a retinal image. We already know Descartes adopted the same position. But there is more. Plempius's experiment is presented throughout not just as an invitation to join him in the dark room, but to perform the experiment ourselves.[11] He instructs us to take the eye of a freshly slaughtered ox and cut away the layers at the optic nerve. Next, cover the back of the eye with a thin piece of paper or with the membrane from an egg and then place the dissected eye where the light enters the dark room. We will see on the back of the eye an inverted picture of all the objects from the world outside, as if we were looking outside ourselves (Plempius 1632: 131–2; for discussion, see Vanagt 2012: 587–8).[12]

(p. 164) Descartes surely knew about Plempius's published anatomical experiment. They were friends in Amsterdam at the time, sharing an enthusiasm for Kepler's optics and for anatomical study while Plempius composed and published *Ophthalmographia*. Descartes may have even encouraged Plempius in his work. Regardless, Descartes did not entirely share the anatomist's interest in recording all of the structural details of the eye—the "fabric" of the eye, as the full title of *Ophthalmographia* referred to it. Instead, Descartes chose to omit many details with "which the anatomists swell their books … for I believe that those I have presented here will suffice in order to explain everything relevant to my subject" (*Dioptrics*, AT VI.108/PO 86). The role of anatomy was circumscribed in optics.

As a result, although Descartes came to be engaged in general anatomical study by 1632, in his published work he was more restrained, publishing only an anatomically informed optics and not a proper or easily recognizable work of medicine, as Plempius had done.

This does not mean Descartes was ill-informed or simply inept as compared to Plempius.[13] It is true that he was not as skilled an anatomist as Plempius, Harvey, or Nicholas Steno, who would later reject many of Descartes's anatomical claims about the brain (Steno 1669). And it is also true Descartes was not drawn in his publications to emulate the encyclopedic efforts of someone like Fabricius ab Aquapendente, the Italian anatomist who reinvigorated Aristotelian comparative anatomy with his publications early in the seventeenth century (Cunningham 1985). But what Descartes saw more explicitly than many of his contemporaries during the rise of experimentation and comparative anatomy is that observation is necessarily theory-laden (Bos and Veerbek 2013: 177). This realization diminished Descartes's enthusiasm for the mass accumulation of observational and experimental results, particularly when those results were inconsistent with a well-established theory (especially one he endorsed). He simply did not believe that we could observe our way to causal knowledge independent of the correct theory. Of course this did not stop Descartes from performing experiments, but it did filter the results he was willing to report. As his remarks in the *Dioptrics* also suggest, too many details posed the danger of distracting our attention as opposed to enhancing our understanding.

Embracing this same principle here, the goal of this section has been to appreciate how optics led Descartes to anatomy in the late 1620s. By his own account, his theory of vision, and questions about the formation and transmission of the retinal image, led him to dissection and anatomical study. He even reports an anatomical experiment in (p. 165) the *Dioptrics* that derives from the anatomical work of one of his physician friends. But as we are about to see, Descartes was true to his word to Mersenne in 1632, for he did attempt "to explain all the main functions of man".

3. Physics and Physiology

As Descartes's medical interests expanded after 1629, his explanation of the main functions of man proved to be the most mechanical of all the parts of his physics.[14] Nevertheless, the material world does not exhaust the content of Descartes's medicine. His true patient is the union between soul and body, and the contentious metaphysics of the union affects Descartes's medicine in a variety of ways, especially in his teleological characterization of disease as a "true error of nature" (*Meditations*, AT VII 85/CSM II.59; for discussion, see Manning 2013). But two commitments stand out in Descartes's physiology: his metaphysics of soul and body and his mechanical view of cardiac motion, the pulse, and the circulation of the blood. In this section my goal is to show Descartes's approach to medical science by discussing these commitments. I address them each in turn.

On more than one occasion Descartes presents his metaphysical commitment to the distinction between the soul and the body before proceeding to the study of nature (*Treatise*, AT XI.119–20/TH 1, *Meditations*, AT VII.85–8/CSM II.59–61, Letters to Elisabeth, 21 May

1643, AT III.665–6/CSMK 218 and 28 June 1643, AT III.691–2/CSMK 226–7, *Principles* I. 48, AT VIIIB.22–3/CSM I.208–9, *Passions* 2–6, AT XI.328–31/CSM I.328–30). In the *Description of the Human Body*, for example, we are reminded to "know theyself" and instructed to examine our "movements" in order to determine which have a bodily cause (AT XI.223–7/SG 170–2). It follows that any medical knowledge we might acquire involves disambiguating the role of the body and the soul as causes in the natural world. In fact, this is one way to understand the aim of the *Description*, the earlier *Treatise*, and the presentation of the *Treatise* in part V of the *Discourse*: all these works seek to demarcate which of our movements can be explained by reference to the body alone.

(p. 166) This is easiest to see in the *Discourse*, where Descartes summarizes the main results of the *Treatise*. We saw in the previous section that in part V of the *Discourse* Descartes recounts his earlier scientific work. He writes:

> [W]hen I looked to see what functions would occur in such a [purely material] body I found precisely those which may occur in us without our thinking of them, and hence without any contribution from our soul … These functions are just the ones in which animals without reason may be said to resemble us. But I could find none of the functions which, depending on thought, are the only ones that belong to us as men. (*Discourse*, AT VI.46/CSM I.134)

In resolving questions about animal movement, Descartes is explicit that animal behavior can only have one of two causes, either the soul or the body. Having initially supposed the existence of a human-like body without a soul, Descartes reports that all movements not caused by our soul can be found in the human-like body he imagined in his earlier research. In other words, all the body's movements can be explained by reference to the body alone.

To illustrate his discoveries from the *Treatise*, he proposes to consider a specific movement "so that you might see how I dealt with this subject". He chooses "the movement of the heart and the arteries". This is a provocative choice. Harvey's demonstration of the circulation of the blood and his account of cardiac motion, first published in 1628, served as a model and counterpoint for Descartes from the moment Mersenne brought Harvey to Descartes's attention. Descartes justified his choice to focus on the same effects as Harvey by explaining that these movements "[b]eing the first and most widespread movement that we observe in animals", it follows that explaining them "will readily enable us to decide how we ought to think about all the others" (*Discourse*, AT VI.46–7/CSM I.134). These movements are "first" because they are the efficient and proximate cause of all other movements in the body (*Treatise*, AT XI.130–1/TH 20–2). In the *Description*, cardiac motion is "so important to know … that, without it, we cannot know anything about the theory of medicine, because all the other functions in the animal depend on it" (AT XI. 245/SG 182). In other words, Descartes's is a cardio- and hemo-centric view of living things (for competing interpretations, see MacKenzie 1989; Bitbol-Hespériès 1990; Detlefsen 2016; Hutchins 2016).

At this point there is no avoiding the so-called “animal-machine doctrine” (Rosenfeld 1940). Descartes’s earliest readers recognized that his monistic view of life was supported by his mechanical explanations for the movement of the heart (Fuchs 2001). In the *Discourse*, Descartes wrote that the movement of the heart “follows just as necessarily as the movement of a clock follows from the force, position, and shape of its counterweights and wheels” (AT IV.50/CSM I.136). The Leiden physician Cornelis van Hoghelande explicitly acknowledged Descartes’s mechanism in this regard. In 1646 he expressed “the opinion, that all bodies, however they act, are to be viewed as (p. 167) machines, and their actions and effects … are to be explained only in accordance with mechanical principles” (cited and trans. in Grene 2005: 93).

While the doctrine is typically seen as a response to some generalized version of entrenched Aristotelianism, this actually masks some of Descartes’s sources and understates his originality (for his sources, see Bredekamp 1995: 39; Riskin 2016: 11–76). In an age of machines, where the achievements of artisans (mechanics) were growing more sophisticated and imaginative, part of Descartes’s contribution was to treat “organic teleology not as a cause but as a result” (Rodis-Lewis 1990: 87). This alone explains his struggles with the problem of generation and some of his disagreements with other so-called “mechanical philosophers”. To fully appreciate the monistic view of life he develops with the animal-machine doctrine, however, it helps to remember that it is not just anti-Aristotelian but anti-Platonic as well. For in spite of all the differences in these two traditions, both emphasize that the soul animates the body (for discussion, see Broadie 2001). Descartes’s dualism between soul and body and his mechanical explanations lead him to break from the two dominant traditions in the early modern period.

Precipitating this break is Descartes’s mechanical account of the heart’s movement and all that follows from it, namely the pulse and the circulation of the blood. These provide the test case for his mechanical explanations and his research program in medicine. But whereas Harvey, the “English physician who must be praised for having broken the ice on this subject” of the circulation, had concluded that the heart is active when contracting and ejecting blood into the arteries, Descartes advanced the view that the heart’s active phase occurred during expansion (*Discourse*, AT VI.49–51/CSM I.135–6). In slightly more technical terms, Harvey advocated for active systole, whereas Descartes supported an active diastole.[15] This distinction mattered to Descartes. Two years after the *Discourse* he objects to those “who take merely a superficial view of things” and as a result “hold that what I wrote is the same as Harvey’s view, simply because I believe in the circulation of the blood; but my explanation of the movement of the heart is radically different from his” (Letter to Mersenne, 9 February 1639, AT II.501/CSMK 134).

Viewing the phases of the heart and detecting when the blood passes through the ventricles and enters the arteries is difficult, requiring skill in vivisection. Descartes never quite saw what Harvey observed. Instead, he relied on his own observations for the timing of the heart’s motion, and he drew on the authority of the medical tradition, which was inconsistent with Harvey’s conclusions (Grene 2005). To explain active diastole, Descartes famously cites a rapid heating of the blood caused by a “fire without (p. 168)

light" present in the heart (*Discourse*, AT VI.46ff./CSM I.134ff.).[16] This is not the easiest fire to understand and neither is the near instantaneous and repetitive cooling and re-heating of the heart. Descartes cites a variety of analogies to render his causal account more plausible, including to observable phenomena such as fermentation and other chemical processes (AT XI.123/TH 9–10, Letter to Plempius, 15 February 1638, AT I.530–1/CSMK 83–4, and *Discourse*, AT VI.46/CSM I.134).

But leaving aside the mechanism of rapid heating, the rest of Descartes's explanation of the heart's motion works as follows: on ignition, the blood expands, which closes the valves to the auricles (atria) and, in the same moment, opens the valves to the arteries into which nearly all the blood in the heart then flows, circulating back to the heart to repeat the cycle of ignition and circulation once mixed with the small amount of blood left in the heart from its most recent expulsion into the arteries (*Discourse*, AT VI.49–51/CSM I.135–6 and, more fully with slight modification, *Description*, AT XI.228–45/SG 172–82). Combining this result with what we learned about visual perception in the previous section, it is fair to conclude that Descartes viewed the body as an arrangement of pipes filled with blood as well as a system of nerves in which the "animal spirits" moved the body and informed the soul of the body's condition through the common sense.

I want to end this section with one last feature of Descartes's physiology, namely its uncanny ability to engender controversy and ignite further research. The problem of generation is the most obvious example of this (for discussion, see Roger 1963; Fouke 1989; the topical essays in Smith 2002). To put matters simply, Descartes recognized a need to do more than explain the functions of already existing living things when he wrote the *Treatise* and summarized it in the *Discourse*. The problem was that he "did not yet have sufficient knowledge" to show "in what manner nature must produce them" (*Discourse*, AT VI.45/CSM I.134). If his animal-machine doctrine was to replace the competing Aristotelian and Platonic traditions, however, Descartes needed to provide an explanation of generation.

He worked hard on the problem of generation, filling notebooks and dedicating the bulk of the *Description* to the topic (for discussion, see Aucante 2006: 314–22). Yet the *Description* was never mentioned in Descartes's correspondence, and few knew of it until it was published, its title modified, as an appendix to the 1664 *Treatise*. Instead, Descartes's earliest readers only knew that he offered a compelling approach, or "hypothesis" as Steno labeled it, that was incomplete in its application and mostly wrong about the observational details (Steno 1669: 13–14; for early published criticism of Descartes's physiology, see, e.g., Bartholin 1655: 336ff. and footnote 14). This sounds rather negative. In more positive terms, we might say Descartes's medicine left a range of phenomena against which his mechanical anatomy and physiology needed to be tested, (p. 169) elaborated, modified, defended, or abandoned. Later figures in the seventeenth century did all of these things, working with an understanding like the one we now have of Descartes's approach to medical science.

4. The Practice of Medicine

While Descartes's medical interests began with questions in optics and evolved to include all of physiology, in part VI of the *Discourse* he looks more directly at medicine's benefits. He writes of "discovering a practical philosophy" and then notes "the preservation of health … is undoubtedly the chief good and the foundation of all the other goods in this life". Thus, to ignore medicine would be nothing less than to ignore the good life, for "if it is possible to find some means of making men in general wiser and more astute than they have been up till now, I believe we must look for it in medicine". And this is not all. "We might free ourselves from an infinity of diseases, both of the body and of the mind, and perhaps even from the infirmity of old age, if we had sufficient knowledge of their causes and of all the remedies that nature has provided us" (*Discourse*, AT VI.62/CSM I.143).

In this final section my goal is to show how Descartes proposed to heal the body and the soul. His many notes, letters, and publications attest to his interest in pathology and therapeutics, and specifically to illnesses such as scurvy, stones, phthisis, jaundice, melancholia, and especially fever (for discussion, see Aucante 2006; Verbeek 1989). Speaking generally, Descartes's proposed remedies were mostly traditional, including exercise, diet linked to medical simples, and positive thinking, though he did recognize a constructive role for the passions that most physicians would not have accepted. In this way he showed sensitivity to the psychosomatic and bodily causes of disease as well as faith in nature's ability to heal herself. All three of these therapeutic strategies are cited in Descartes's exchange with Princess Elisabeth of Bohemia during the 1640s and I will develop this rich example of his medical advice in the remainder of this section.[17]

Writing to Princess Elisabeth in 1644, Descartes acknowledges her recent health difficulties including her "indisposition in the stomach" (Letter to Elisabeth, 8 July 1644, AT V. 65/CSMK 237). Assuming the role of a corresponding physician, he continues, "the remedies which Your Highness has chosen, diet and exercise, are in my opinion the best of all". There is nothing remarkable in this. Descartes is merely endorsing a very traditional medical intervention: you cure the body by controlling a subgroup of the so-called non-naturals, in this case what you eat and how much you move. Yet, tellingly, Descartes also qualified this endorsement. Intervening through direct control of the body was best, "leaving aside those [remedies] pertaining to the soul" (AT V. 65/CSMK 237).

(p. 170) Descartes believed the medicine of the soul was relevant because he had "no doubt that the soul has great power over the body, as is shown by the great bodily changes produced by anger, fear and the other passions". He continues:

> I know no thought more proper for preserving health than a strong conviction and firm belief that the architecture of our bodies is so thoroughly sound that when we are well we cannot easily fall ill except through extraordinary excess or infectious air or some other external cause, while when we are ill we can easily recover by the unaided force of nature, especially when we are still young. (AT V. 65/CSMK 237)

There are three therapeutic strategies present in this letter. We already noted the first, which reduces to a form of mechanical therapy. In the example above, Descartes does not advise exercise because of an imbalance in the traditional four humors of the body, but because exercise will facilitate circulation, thinning of the blood, and possibly even a change in the heat in the heart, which plays a central role in all physiological functions. And, as we are about to see, biomechanics is also implicated in the two further therapeutic strategies Descartes advises Elisabeth to consider, though it is not itself the most effective therapy in Descartes's view.

The two complementary therapies recommended are instances of psychosomatic and naturopathic medicine. We saw above that Descartes advises Elisabeth to think about how persistent and self-sustaining her body is and this thought, this reassuring and happy thought, is a form of mental hygiene preventing illness except in "extraordinary" cases. In later correspondence with Elisabeth, Descartes further elaborates the power of the soul and especially the imagination on our bodies. He cites two hypothetical men. The first man's thoughts make him physically sick while the other's preserve and heal his body. Specifically, the first man has "every reason to be happy" but spends all his time "in the consideration of sad and pitiful objects". This, "by itself" writes Descartes, "would be enough gradually to constrict his heart and make him sigh in such a way that the circulation of his blood would be delayed and slowed down" (Letter to Elisabeth, May or June 1645, AT IV.219/CSMK 250). Linking the mind's thoughts to the body, Descartes's mechanical view of the body re-emerges. For the "grosser parts of his blood, sticking together, could easily block the spleen, by getting caught and stopping in its pores". Alternatively, "the more rarefied parts, being continually agitated, could affect his lungs and cause a cough which in time could be very dangerous" (AT IV.219/CSMK 250). In spite of this very physical and materialist talk, Descartes's message is about psychosomatic medicine: the wrong thoughts can make us physically ill.

The second hypothetical case Descartes asks Elisabeth to consider involves a man with little reason to be happy. But this man, as opposed to the one before, spends his "time in the consideration of objects which could furnish contentment and joy", including, presumably, that earlier mentioned "conviction and firm belief that the architecture of [his body] … is sound". Descartes maintains that this second man's happier thoughts "would be capable of restoring him to health, even if his spleen and lungs were already in a poor condition because of the bad condition of the blood caused by sadness" (p. 171) (AT IV.219/CSMK 250). Descartes only adds that coupling psychosomatic therapy with "medical remedies to thin out the part of the blood causing the obstructions" would be the most effective approach. Once again, if we look beyond the proximate mechanical causes Descartes cites, the message for Elisabeth is about psychosomatic medicine: the right thoughts can preserve our bodies and even regain our health.

Descartes's advice is for Elisabeth to direct her mind toward ideas that will bring her joy. Initially citing the advantages of a medicine of the body, he acknowledges "the waters of Spa are very good", but "above all if Your Highness while taking them observes the customary recommendation of doctors, and frees her mind from all sad thoughts", she can

maximize her chances of recovery. Indeed, in this way, using the biomechanical therapy indicated by her condition plus psychosomatic medicine, Descartes believes she “will recover perfect health”. In addition, and repeating a sentiment from the *Discourse*, he reminds her that bodily health “is the foundation of all the other goods of this life” (AT IV. 219/CSMK 250; similarly, Letter to Elisabeth, October or November 1646, AT IV.529/ CSMK 296).

Finally, Descartes’s naturopathic medicine also surfaces in his July 1644 letter to Elisabeth. Recall that he told her the “unaided force of nature” recovers our health when it is lost. Descartes’s claim here is not obviously consistent with his well-known metaphysical commitments laying waste to teleological explanation in physics (*Meditations*, AT VII.55–6/CSM II.38–9). But even so, Descartes unquestionably supports the idea that bodies can resist external causes that would otherwise change their present state, and that bodies even return to a state of health of their own accord. As he explains in a conversation recorded by Frans Burman, even “when we are ill, nature still remains the same … and makes light of any obstacles in her way, provided we obey her”. Accordingly, physicians ought to “allow people the food and drink they frequently desire when they are ill … [because in] such cases nature herself works to effect her own recovery; with her perfect internal awareness of herself, she knows better than the doctor who is on the outside” (AT V.179/CSMK 354). In other words, physicians should be less intrusive or, better, should help their patients do as their patients dictate because the patient knows the particularities of her case best. Indeed, Descartes emphasizes the privileged insight of a patient when he cites Tiberius Caesar, who “said … no one who has reached the age of thirty should need a doctor, since at that age he is quite able to know for himself through experience what is good or bad for him, and so be his own doctor” (AT V.179/CSMK 354).

Elisabeth gratefully received Descartes’s medical advice but she also perceptively resisted, asking for a definition of the passions so that she might better understand his recommendations. Descartes complied, and this exchange led him to write the *Passions*, where many of the ideas from the correspondence re-emerge. In the final analysis, however, it is not clear which of Descartes’s three therapeutic strategies—intervening on the soul, the body, or allowing nature to take its course—he most preferred. They exist together in the correspondence and Descartes does not appear to see a tension between them, though he does think experience will often serve us better than the physician’s reasoning. Fortunately, we do not need to pick between them. (p. 172) We need only recognize that Descartes enthusiastically recommended these three strategies when he took on the role of physician.

5. Conclusion

If there is one lesson to be learned from this chapter, it is that Descartes’s days were not spent simply contemplating abstract questions of metaphysics and epistemology or performing experiments with falling bodies, prisms, or air pressure and the void. His days were often messy, filled with dissections and even therapeutic trial and error, in which he

developed recipes and considered cures for a range of ailments. It is this Descartes, the hands-on Descartes, the one interested in anatomy and physiology, pathology and therapeutics, who has been the focus here. Yet because medicine connects to many of the other topics in this Handbook, a point noted at the outset of this chapter and in passing throughout, we might press this chapter's lesson further. Perhaps Descartes's philosophical project is best seen as a medical philosophy? The evidence considered here suggests that it is.

References

Aucante, Vincent (2006), *La philosophie medicale de Descartes*. Paris: Presses Universitaires de France.

Baillet, Andrien (1691), *Le vie de Monsieur Des-Cartes*, 2 vols. Paris: D. Horthemels.

Baldassarri, Fabrizio (2018), "Seeking Intellectual Evidence in the Sciences: The Role of Botany in Descartes' Therapeutics", in J. A. T. Lancaster and R. Raiswell (eds.), *Evidence in the Age of the New Sciences*. Dordrecht: Springer, 47–75.

Bartholin, Thomas (1655), *Anatomica … Reformata*. Lugdunum Batavorum: Hackius.

Bellis, Delphine (2016), "The Perception of Spatial Depth in Kepler's and Descartes' Optics: A Study of an Epistemological Reversal", in K. Vermeir and J. Regier (eds.), *Boundaries, Extents and Circulations*. Dordrecht: Springer, 125–52.

Bertoloni Meli, Domenico (1997), "The New Anatomy of Marcello Malpighi", in D. Bertoloni Meli (ed.), *Marcello Malpighi: Anatomist and Physician*. Florence: Leo S. Olschki, 21–62.

Bertoloni Meli, Domenico (2013), "Machines and the Body: Between Anatomy and Pathology", in A. Gaillard, et al. (eds.), *L'Automate: Modèle Métaphore Machine Merveille*. Pessac: Presses Universitaires de Bordeaux, 53–71.

Bitbol-Hespériès, Annie (1990), *Le Principe De Vie Chez Descartes*. Paris: Vrin.

Bitbol-Hespériès, Annie (1993), "Descartes et Regius: leur pensée médicale", in T. Verbeek (ed.), *Descartes et Regius*. Amsterdam: Rodopi, 47–68.

Bitbol-Hespériès, Annie (2000a), "Cartesian Physiology", in S. Gaukroger, J. Schuster, and J. Sutton (eds.), *Descartes' Natural Philosophy*. New York: Routledge, 349–82.

Bitbol-Hespériès, Annie (2000b), "Descartes, Reader of Harvey: The Discovery of the Circulation of Blood in Context", *Graduate Faculty Philosophy Journal* 22 (1): 15–40.

Bos, Erik-Jan (2017), "Descartes and Regius on the Pineal Gland and Animal Spirits, and a Letter of Regius on the True Seat of the Soul", in S. Gaukroger and C. Wilson (eds.),

Descartes (p. 173) *and Cartesianism: Essays in Honor of Desmond Clarke*. Oxford: Oxford University Press, 95–112.

Bos, Erik-Jan, and Theo Verbeek (2013), “Conceiving the Invisible. The Role of Observation and Experiment in Descartes’s Correspondence, 1630–50”, in D. van Miert (ed.), *Communication Observations in Early Modern Letters (1500–1675): Epistolography and Epistemology in the Age of the Scientific Revolution*. London: Warburg Institute, 161–78.

Bredekamp, Horst (1995), *The Lure of Antiquity and the Cult of the Machine*, trans. A. Brown. Princeton: Markus Wiener Publishers.

Broadie, Sarah (2001), “Soul and Body in Plato and Descartes”, *Proceedings of the Aristotelian Society* 101 (1): 295–308.

Brown, Theodore (1985), “Descartes, Dualism, and Psychosomatic Medicine”, in W. F. Bynum, R. Porter, and M. Shepard (eds.), *The Anatomy of Madness*, vol. 1. London: Tavistock Press, 40–62.

Buchwald, Jed Z. (2008), “Descartes’s Experimental Journey Past the Prism and Through the Invisible World to the Rainbow”, *Annals of Science* 65: 1–46.

Burnett, D. Graham (2005), *Descartes and the Hyperbolic Quest: Lens Making Machines and their Significance in the Seventeenth Century*. Philadelphia: American Philosophical Society.

Canguilhem, Georges (1955), *La formation du concept de réflexe aux XVIIe et XVIIIe siècles*. Paris: Presses Universitaires de France.

Carter, Richard B. (1983), *Descartes’ Medical Philosophy: The Organic Solution to the Mind–Body Problem*. Baltimore: Johns Hopkins University Press.

Clarke, Edwin (1968), “The Doctrine of the Hollow Nerve in the Seventeenth and Eighteenth Centuries”, in L. G. Stevenson and R. P. Multhauf (eds.), *Medicine, Science and Culture: Historical Essays in Honor of Owsei Temkin*. Baltimore: Johns Hopkins Press, 123–41.

Cook, Harold (1990), “The New Philosophy and Medicine in Seventeenth-Century England”, in D. Lindberg and R. Westman (eds.), *Reappraisals of the Scientific Revolution*. Cambridge: Cambridge University Press, 397–436.

Cook, Harold (2007), *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*. New Haven: Yale University Press.

Cook, Harold (2018), *The Young Descartes: Nobility, Rumor, and War*. Chicago: University of Chicago Press.

Cunningham, Andrew (1985), “Fabricius and the ‘Aristotle project’ in Anatomical Teaching and Research at Padua”, in A. Wear, R. French, and I. M. Lonie (eds.), *The Medical Renaissance of the Sixteenth Century*. Cambridge: Cambridge University Press, 195–222.

Cunningham, Andrew (2002), “The Pen and the Sword: Recovering the Disciplinary Identity of Physiology and Anatomy Before 1800, I: Old Physiology—the Pen”, *Studies in History and Philosophy of Science, Part C* 33 (4): 631–65.

Dear, Peter (1998), “A Mechanical Microcosm: Bodily Passions, Good Manners, and Cartesian Mechanism”, in C. Lawrence and S. Shapin (eds.), *Science Incarnate: Historical Embodiments of Natural Knowledge*. Chicago: University of Chicago Press, 51–82.

Des Chene, Dennis (2000), “Life and Health in Cartesian Natural Philosophy”, in S. Gaukroger, J. Schuster, and J. Sutton (eds.), *Descartes’ Natural Philosophy*. New York: Routledge, 723–35.

Des Chene, Dennis (2001), *Spirits and Clocks: Machine and Organism in Descartes*. Ithaca: Cornell University Press.

Descartes, René (1972), *Treatise on Man*, trans. T. S. Hall. Cambridge, MA: Harvard University Press. [TH]

(p. 174) Descartes, René (1984–91), *The Philosophical Writings of Descartes*, ed. J. Cottingham, R. Stoothoff, D. Murdoch, and A. Kenny, 3 vols. Cambridge: Cambridge University Press.

Descartes, René (1996a), *Oeuvres de Descartes*, ed. Charles Adam and Paul Tannery, 12 vols. Paris: Librairie Philosophique/Vrin.

Descartes, René (1996b), *Le Monde, L’Homme*, intro. and notes by A. Bitbol-Hespériès and J. P. Verdet. Paris: Éditions du Seuil.

Descartes, René (1998), *The World and Other Writings*, trans. and ed. S. Gaukroger. Cambridge: Cambridge University Press. [SG]

Descartes, René (2000), *Descartes: Écrits physiologiques et médicaux*, trans. and ed. V. Aucante. Paris: Vroché.

Descartes, René (2001), *Discourse on Method, Optics, Geometry, and Meteorology*, trans. P. J. Olscamp. Indianapolis: Bobbs-Merrill. [PO]

Detlefsen, Karen (2016), “Descartes on the Theory of Life and Methodology in the Life Sciences”, in P. Distelzweig, B. Goldberg, and E. R. Ragland (eds.), *Early Modern Medicine and Natural Philosophy*. Dordrecht: Springer, 141–72.

Distelzweig, Peter (2015), “The Use of *Usus* and the Function of *Functio*: Teleology and its Limits in Descartes’ Physiology”, *Journal of the History of Philosophy* 53 (3): 377–99.

Dreyfus-Le Foyer, H. (1937), “Les conceptions médicales de Descartes”, *Revue de Métaphysique et de Morale* 44: 237–86.

Duchesneau, Francois (1975), “Malpighi, Descartes, and the Epistemological Problems of Iatromechanism”, in M. L. Righini Bonelli and W. R. Shea (eds.), *Reason, Experiment, and Mysticism in the Scientific Revolution*. New York: Science History Publications, 111–30.

Edwards, Michael (2008), “Digressing with Aristotle: Hieronymus Dandinus’ *De corpore animato* (1610) and the Expansion of Late Aristotelian Philosophy”, *Early Science and Medicine* 13 (2): 127–70.

Edwards, Michael (2012), “Body, Soul and Anatomy in Late Aristotelian Psychology”, in G. Manning (ed.), *Matter and Form in Early Modern Science and Philosophy*. Leiden: Brill, 33–75.

Fosseyeux, Marcel (1923), *Les études anatomiques de Descartes en Hollande: 1623–1649*. Anvers: De Vlijt.

Fouke, Daniel (1989), “Mechanical and ‘Organical’ Models in Seventeenth-Century Explanations of Biological Reproduction”, *Science in Context* 3 (2): 365–81.

French, Roger (1989), “Harvey in Holland: Circulation and the Calvinists”, in R. French and A. Wear (eds.), *The Medical Revolution of the Seventeenth Century*. Cambridge: Cambridge University Press, 46–87.

Fuchs, Thomas (2001), *The Mechanization of the Heart: Harvey and Descartes*, trans. M. Grene. Rochester: University of Rochester Press.

Garber, Daniel (1992), *Descartes’ Metaphysical Physics*. Chicago: University of Chicago Press.

Gauvin, Jean-François (2008), “Habits of Knowledge: Artisans, Sevants and Mechanical Devices in Seventeenth-Century French Natural Philosophy”. PhD dissertation, Harvard University.

Georges-Berthier, Auguste (1914/1920), “Le mecanisme cartesien et la physiologie au XVIIe siecle”, *Isis* 2: 37–89 and 3: 21–58.

Gilson, Étienne (1967), *Études sur le role de la pensée medieval dans la formation du système cartésien*. Paris: Vrin.

Gorham, Geoff (1994), “Mind–Body Dualism and the Harvey–Descartes Controversy”, *Journal of the History of Ideas* 55: 211–34.

(p. 175) Grene, Marjorie (2005), “Descartes and the Heart Beat: A Conservative Innovation”, in J. Z. Buchwald and A Franklin (eds.), *Wrong for the Right Reasons*. Dordrecht: Springer, 91–7.

Grmek, Mirko D. (1972), “A Survey of the Mechanical Interpretations of Life from the Greek Atomists to the Followers of Descartes”, in A. D. Breck and W. Yourgrau (eds.), *Biology, History and Natural History*. New York: Plenum Press, 181–95.

Grmek, Mirko D. (1990), *La première revolution biologique*. Paris: Payot.

Hall, Thomas S. (1970), “Descartes’ Physiological Method: Position, Principles, Examples”, *Journal of the History of Biology* 3 (1): 53–79.

Harvey, William (1653), *The Anatomical Exercises of Dr. William Harvey*. London: Francis Leach.

Harvey, William (1957), *Movement of the Heart and Blood in Animals*, trans. K. J. Franklin. Oxford: Blackwell Scientific Publications.

Hatfield, Gary (1992), “Descartes’ Physiology and its Relation to his Psychology”, in J. Cottingham (ed.), *Cambridge Companion to Descartes*. Cambridge: Cambridge University Press, 335–70.

Heeffer, Albrecht (2017), “Using Invariances in Geometrical Diagrams: Della Porta, Kepler and Descartes on Refraction”, in A. Borrelli, G. Hon, and Y. Zik (eds.), *The Optics of Giambattista Della Porta (ca. 1535–1615): A Reassessment*. Dordrecht: Springer, 145–68.

Hutchins, Barneby (2016), “Descartes and the Dissolution of Life”, *Southern Journal of Philosophy* 54 (2): 155–73.

Kepler, Johannes (1604), *Ad Vitellionem Paralipomena* … Frankfurt: Claudium Marnium & Hæredes Ioannis Aubrii.

Kolesnik-Antoine, Delphine (2012), “Les voies du corps: Schuyl, Clerselier et La Forge lecteurs du traité de L’Homme de Descartes”, *Conscutio temporum: Rivista critica della postmodernità* 2: 118–28.

Lindberg, David (1976), *Theories of Vision from Al-Kindi to Kepler*. Chicago: University of Chicago Press.

Lindberg, David (1978), “The Science of Optics”, in D. Lindberg (ed.), *Science in the Middle Ages*. Chicago: University of Chicago Press, 338–68.

Lindeboom, G. A. (1975), “Dog and Frog: Physiological experiments at Leiden during the Seventeenth Century”, in T. H. Lunsingh Scheurleer and G. H. M. Posthumus Meyjes (eds.), *Leiden University in the Seventeenth Century: An Exchange of Learning*. Leiden: Brill, 278–93.

Lindebloom, G. A. (1978), *Descartes and Medicine*. Amsterdam: Rodopi.

Lindeman, Mary (2010), *Medicine and Society in Early Modern Europe*. Cambridge: Cambridge University Press.

Mackenzie, Ann Wilbur (1989), “Descartes on Life and Sense”, *Canadian Journal of Philosophy* 19: 163–92.

Manning, Gideon (2013), “Descartes’ Healthy Machines and the Human Exception”, in S. Roux and D. Garber (eds.), *The Mechanization of Natural Philosophy*. Dordrecht: Springer, 237–62.

Manning, Gideon (2014), “Descartes and the Bologna Affair”, *British Journal for the History of Science*, 47 (1): 1–13.

Manning, Gideon (2018), “Health in the Early Modern Philosophical Tradition”, in P. Adamson (ed.), *Health: The History of A Concept*. Oxford: Oxford University Press, 180–221.

Mayr, Otto (1986), *Authority, Liberty, and Automatic Machinery in Early Modern Europe*. Baltimore: Johns Hopkins University Press.

(p. 176) Menn, Stephen (2002), *Descartes and Augustine*. Cambridge: Cambridge University Press.

Meschini, Franco A. (1998), *Neurofisiologia Cartesiana*. Florence: Leo S. Olschki.

Mesnard, Pierre (1937), “L’Esprit de la Physiologie Cartésienne”, *Archives de Philosophie* 13: 181–220.

Miller, Peter N. (2005), “Description Terminable and Interminable: Looking at the Past, Nature, and Peoples in Peiresc’s Archive”, in G. Pomata and N. Siraisi (eds.), *Historia: Empiricism and Erudition in Early Modern Europe*. Cambridge, MA: MIT Press, 355–97.

Nadler, Steven (1998), “Doctrines of Explanation in Late Scholasticism and the Mechanical Philosophy”, in D. Garber and M Ayers (eds.), *The Cambridge History of Seventeenth-Century Philosophy*. Cambridge: Cambridge University Press, 513–52.

Omodeo, Pietro D. (2016), “Central European Polemics over Descartes: Johannes Placentinus and his Academic Opponents at Frankfurt on Oder (1653–1656)”, *History of Universities* 29 (1): 29–64.

Osler, Margaret (2008), “Descartes’s Optics: Light, the Eye, and Visual Perception”, in J. Broughton and J. Carriero (eds.), *A Companion to Descartes*. Oxford: Blackwell Publishing, 124–42.

Petrescu, Lucian (2013), “Descartes on the Heartbeat: The Leuven Affair”, *Perspectives on Science* 21: 397–428.

Plempius, Vopiscus Fortunatus (1632), *Ophthalmographia sive tractatio de oculi fabrica, actione et usu …* Amsterdam: Henrici Laurentii.

Pomata, Gianna (2005), "*Praxis Historialis*: The Uses of *Historia* in Early Modern Medicine", in G. Pomata and N. Siraisi (eds.)*, Historia: Empiricism and Erudition in Early Modern Europe*. Cambridge, MA: MIT Press, 105–46.

Ragland, Evan (2016), "Mechanism, the Senses, and Reason: Franciscus Sylvius and Leiden Debates Over Anatomical Knowledge after Harvey and Descartes", in P. Distelzweig, B. Goldberg, and E. R. Ragland (eds.), *Early Modern Medicine and Natural Philosophy*. Dordrecht: Springer, 173–206.

Riskin, Jessica (2016), *The Restless Clock: A History of the Centuries-Long Argument over What Makes Living Things Tick*. Chicago: University of Chicago Press.

Rodis-Lewis, G. (1990), *L'anthropologie cartésienne*. Paris: Presses Universitaires de France.

Rodis-Lewis, G. (1998), *Descartes: His Life and Thought*, trans. J. M. Todd. Ithaca: Cornell University Press.

Roger, Jacques (1963), *Les sciences de la vie dans la pensée française de XVIIIe siècle: La generation des animaux de Descartes a l'Encyclopédie*. Paris: Armand Colin.

Rosenfeld, L. C. (1940), *From Beast Machine to Man Machine: Animal Soul in French Letters from Descartes to La Mettrie*. New York: Octagon Books.

Roux, Sophie (2004), "Cartesian Mechanics", in C. R. Palmerino and J. M. M. H. Thijssen (eds.), *The Reception of the Galilean Science of Motion in Europe*. Dordrecht: Kluwer Academic Publishers, 25–66.

Schiefsky, Mark J. (2007), "Galen's Teleology and Functional Explanation", *Oxford Studies in Ancient Philosophy* 33: 369–400.

Schmaltz, Tad (2017), *Early Modern Cartesianism: Dutch and French Constructions*. Oxford: Oxford University Press.

Schmitt, Charles B. (1988), "The Rise of the Philosophical Textbook", in C. B. Schmitt, et al. (eds.), *The Cambridge History of Renaissance Philosophy*. Cambridge: Cambridge University Press, 792–804.

(p. 177) Schuster, John (2000), "Descartes Opticien: The Construction of the Law of Refraction and the Manufacture of Physical Rationales, 1618–1629", in S. Gaukroger, J. Schuster, and J. Sutton (eds.), *Descartes' Natural Philosophy*. London: Routledge, 258–312.

Schuster, John (2013), *Descartes-Agonistes: Physcio-mathematics, Method and Corpuscular-Mechanism 1618–1633*. Dordrecht: Springer.

Serjeantson, Richard W. (2011), “The Soul”, in D. Clarke and C Wilsom (eds.), *The Oxford Handbook of Philosophy in Early Modern Europe*. Oxford: Oxford University Press, 119–41.

Shapin, Steve (2000), “Descartes the Doctor: Rationalism and its Therapies”, *British Journal for the History of Science* 33: 131–54.

Shea, William R. (1991), *The Magic of Numbers and Motion: The Scientific Career of René Descartes*. Canton: Science History Publications.

Siraisi, Nancy (1990), *Medieval and Early Renaissance Medicine: An Introduction to Knowledge and Practice*. Chicago: University of Chicago Press.

Sloan, Philip (1977), “Descartes, the Sceptics, and the Rejection of Vitalism in Seventeenth-Century Physiology”, *Studies in History and Philosophy of Science* 8: 1–28.

Smith, Justin, ed. (2002), *The Problem of Animal Generation in Early Modern Philosophy*. Cambridge: Cambridge University Press.

Spruit, Lee (1994), *Species Intelligibilis: From Perception to Knowledge*, 2 vols. Leiden: Brill.

Steno, Nicolaus (1669), *Discours de Monsieur Stenon, sur L’anatomie du cerveau*. Paris: Robert de Ninville.

Strazzoni, Andrea (2018), “How Did Regius Become Regius? The Early Doctrinal Evolution of a Heterodox Cartesian”, *Early Science and Medicine* 23: 1–51.

Trevisani, Francesco (2012), *Descartes in Deutschland: Die Rezeption des Cartesianismus in de Hochschulen Nordwestdeutschlands*. Berlin: Lit Verlag.

Van Berkel, Klaas (2013), *Isaac Beeckman on Matter and Motion: Mechanical Philosophy in the Making*. Baltimore: Johns Hopkins University Press.

Van Berkel, Klaas, Albert van Helden, and Lodewijk Palm, eds. (1999), *A History of Science in The Netherlands: Survey, Themes and Reference*. Leiden: Brill.

Vanagt, Katrien (2012), “Early Modern Medical Thinking on Vision and the Camera Obscura. V. F. Plempius’ *Ophthalmographia*”, in M. Horstmanshoff, H. King. and C. Zittel (eds.), *Blood, Sweat and Tears: The Changing Concepts of Physiology from Antiquity into Early Modern Europe*. Leiden: Brill, 569–94.

Vanagt, Katrien (2016), “V. F. Plempius’ experiments and the ‘dramatic’ turn in the investigation of the eye”, *Sartoniana* 29: 89–114.

Verbeek, Theo (1989), “Les passions et la fièvre: L’idée de la maladie chez Descartes et quelques cartésiens néerlandais”, *Tractrix* 1: 45–61.

Voss, Stephen (2000), “Descartes: Heart and Soul”, in J. P. Wright and P. Potter (eds.), *Psyche and Some: Physicians and Metaphysicians on the Mind–Body Problem From Antiquity to Enlightenment*. Cambridge: Cambridge University Press, 173–96.

Watson, Richard (2002), *Cogito Ergo Sum: The Life of René Descartes*. Boston: David R. Godine.

Wilkin, Rebecca (2003), “Figuring the Dead Descartes: Claude Clerselier’s Homme de Rene Descartes (1664)”, *Representations* 83: 38–66.

Notes:

([1]) We are fortunate to have a modern edition of Descartes’s medical notebooks (Descartes 2000), versions of his publications with editorial notes related to medicine (e.g. Descartes 1972, 1996b), several scholarly monographs discussing his medicine or its reception (e.g. Fosseyeux 1923; Canguilhem 1955; Roger 1963; Gilson 1967; Lindeboom 1978; Carter 1983; Bitbol-Hespériès 1990; Meschini 1998; Des Chene 2001; Fuchs 2001; Aucante 2006; Cook 2007; Trevisani 2012; Schmaltz 2017), and a growing bibliography of relevant papers (e.g. Georges-Berthier 1914/1920; Dreyfus-Le Foyer 1937; Mesnard 1937; Hall 1970; Duchesneau 1975; Sloan 1977; Brown 1985; Verbeek 1989; Hatfield 1992; Bitbol-Hespériès 1993, 2000a, 2000b; Gorham 1994; Shapin 2000; Des Chene 2000; Voss 2000; Cunningham 2002; Wilkin 2003; Grene 2005; Kolesnik-Antoine 2012; Manning 2013; Distelzweig 2015; Ragland 2016; Omodeo 2016; Baldassarri 2018).

([2]) Descartes did not study medicine at the University of Poitiers where he received his law degree, and his youthful attitude reported in the *Discourse* suggests a negative view of medicine (*Discourse*, AT VI.6–9/CSM I.113–15). Our first indication of medical interests is a reference to “medical practice” in *Studium bonae mentis* (*Studium*, AT 10.191–203; see Aucante 2006: 81). But this is a single reference in an incomplete work composed at an uncertain time. There is a reference to “medicine” in Baillet’s account of Descartes’s private conversation with Cardinal Bérulle. But Baillet is likely incorrect about the details and appears to merely paraphrase what Descartes writes later in part VI of the *Discourse* (Baillet 1691: I.165). For discussion of Descartes’s early life, see Rodis-Lewis 1998; Cook 2018.

([3]) Descartes’s vocabulary of “function” includes *actio, usus, utilitatis, functio, usage*, and *fonction*. Arguably, he is a pluralist about functions and this has implications for his view of teleology in physiology. Space does not allow me to discuss this issue here, but for the different meanings of ‘function’ and how they relate to anatomy (*historia* or *fabrica*) and physiology (*actio* and *usus*), see Pomata 2005. For precedent in antiquity, see Schiefsky 2007.

([4]) Kepler demonstrates that all the rays entering the eye from a point on the visible object are focused to a single point on the retina, where they form a “picture” (*pictura*) or retinal image. Among the truly remarkable claims in Kepler’s account is that non-perpendicular rays coming from an object in the visual field are incorporated into the production

of the retinal image as a result of refraction. For discussion, see Lindberg 1978: 354 and, in greater depth, Lindberg 1976.

([5]) Descartes followed Kepler in his study of the geometry of how light rays are bent, including in reflection and refraction. Descartes specifically worked out a mathematical analysis of refraction on the basis of which he discovered the sine law. Both Schuster and Shea describe experiments with the measurement of refraction as central to Descartes's achievement (Schuster 2013: 365–72; Shea 1991: 149–64). Schuster's highly intricate but inferential reconstruction of Descartes's discovery remains the most compelling. For a recent alternative relying on a diagram that first appeared in Witelo's optics, see Heeffer 2017.

([6]) Descartes's scholastic predecessors, e.g. the Coimbran fathers and Eustachius of Santo Paulo, believed color resulted from a mixing of the four primary qualities—i.e. hot, cold, wet, and dry (cited in Nadler 1998: 546–7). Such qualitative explanation is anathema to Descartes's mechanical physics.

([7]) In the *Treatise*, and later in the *Passions*, the common sense is identified as the pineal gland, but Descartes does not specify it as such in the *Dioptrics* beyond claiming that it is a little gland in the brain (*Passions*, AT XI.354/CSM I.341). I will not discuss the pineal gland in greater detail here, but see the discussion in Bos 2017.

([8]) While Descartes appears to be presenting an anatomical fact about the nerves, his starting assumption that the nerves have a threefold structure is actually a synthesis of what were at the time competing views (see the discussion in Clarke 1968:124–6). Marcillo Malpighi would later undermine Descartes's assumption in his 1665 *De cerebro* (for discussion of the relevant passages in Malpighi's work, see Bertoloni Meli 1997: 40–3).

([9]) Other topics in the *Dioptrics* include: seeing distance, which Descartes attributes to the eye's automatic changes when focusing to produce the retinal image and the convergence of the two eyes on a given object (Schuster 2013: 314ff.; Hatfield 1992: 357; Bellis 2016); lens-making (Burnett 2005; Gauvin 2008); and, as a result of having abandoned the principled difference between art and nature, the manner in which we might improve our vision by applying insights from the earlier discourses of the *Dioptrics* (Des Chene 2000: 727–9).

([10]) Well regarded in Amsterdam as an anatomist, Plempius translated Cabrolius's anatomical atlas as *Ontleeding des Menschelycken Lichaems* in 1633, contributing substantially to the vocabulary of Dutch anatomy (for the state of Dutch anatomy, see Lindeboom 1975). For Plempius's specific view of anatomy, see Vanagt 2016: 95.

([11]) Nicolas-Claude Fabri de Peiresc began anatomical experiments on the eye in August 1634, carefully recording what he witnessed in an unpublished work. Like Plempius and Descartes, Peiresc found "from experience … that at the back of the concavity, all clear of vitreous material, the burning candle is painted and represented reversed, as in a con-

cave mirror" (cited and translated in Miller 2005: 372). Peiresc's experiments took place after the publication of Plempius's *Ophthalmographia* but before Descartes's *Dioptrics*.

([12]) Plempius's experiment is recreated in the film *In Waking Hours*, available at: http://balthasar.be/online-films [accessed March 2018].

([13]) In the existing literature there is deep disagreement over Descartes's medical competence and the credit he deserves in the history of medicine. He has long been criticized for not caring "about anatomical details" and only about "a philosophical program" (Bertoloni Meli 2013: 55). Georges-Berthier (1914/1920) takes a negative view and likewise Lindeboom (1978: 100) and Des Chene (2000: 153). Watson (2002: 315) gives Descartes more credit. So too, Bitbol-Hespériès (2000a) and Mackenzie (1989: 163). Grmek characterizes Descartes's physiological achievement in choosing to view living things as automata as "certainly very audacious on his part, for in his time nothing was known of feedback circuits and program records. We can now easily understand why he was not able to express clearly all the meaning of his beast-machine analogy: he was in search for a still non-existing mechanical model" (Grmek 1972: 187; see also Grmek 1990: 127ff.).

([14]) In an essay recalling the evolution of Descartes's mechanical philosophy, Sophie Roux observes, "in his biological treatises, Descartes rarely speaks of laws of motion, or even corpuscles [(cf. AT XI.137 and AT XI.279)]. At best, he talks about machines, but in a very weak acceptation. His explanations amount to the evocation of artificial designs (organs, clocks, automata), to the comparison of the *explanandum* with better known natural phenomena … or, simply, to the representation of necessary chains of causes and effects" (Roux 2004: 34–5; see also Mayr 1986: 63–4; Des Chene 2001: 71–2). Citing these comparisons, Peter Dear concludes that there "is thus a sense in which Descartes's mechanistic universe was at its most authentically mechanical when discussing life", and that "a lawlike [sic], mathematically determined universe need not be specifically mechanical; Descartes's universe was mechanical only insofar as he used machines, and especially automata, as models of intelligibility" (Dear 1998: 59).

([15]) In 1649 Harvey disputes Descartes's position in his *Letters to Riolan*, claiming that Descartes did not observe carefully enough (Harvey 1957: 137). Later, Regius's Cartesian version of cardiac motion, a slightly modified version of Descartes's view, is cited in Harvey 1653: 114ff. For discussion, see French 1989; Fuchs 2001; Ragland 2016. On Regius's early development, see Strazzoni 2018.

([16]) Questioned about the heat coming from the "fire without light", Descartes concedes to Plempius that the heat in the heart differs "in certain respects" from the heat of a traditional fire (Letter to Plempius, 15 February 1638, AT I.530). This is one of several instances where Descartes modifies his position responding to Plempius.

([17]) The material in this section is discussed in greater detail in Manning (2018).

Gideon Manning

Faculty of Arts, Claremont Graduate University

Descartes on Freedom

C. P. Ragland

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Although Descartes considered human freedom to be of the utmost practical and theoretical importance, his remarks about it are scattered and highly ambiguous, giving rise to several conflicting interpretations of Cartesian freedom—especially as it relates to determinism. This chapter provides a survey of the relevant texts and the competing interpretations, arguing ultimately that for Descartes, human freedom consists in the ability to do the right thing. On this account, freedom is not compatible with being determined to err or to sin, but it is compatible with being determined to embrace the truth or to love God.

Keywords: freedom, determinism, self-determination, ability, error, providence

(p. 178) DESCARTES considered human freedom to be of the utmost practical and theoretical importance. In his last work, *The Passions of the Soul*, he extols the virtue of generosity as "the key to all the other virtues and a general remedy for every disorder of the passions" (AT XI.454/CSM I.388). Generosity has two components: 1) knowledge that nothing truly belongs to us but "the exercise of our free will and the control we have over our volitions" (AT XI.445/CSM I.384), and 2) "a firm and constant resolution" to use this freedom well (AT XI.446/CSM I.384). The correct use of free will is thus the key to human happiness (AT XI.442/CSM II.382) and "the greatest of all the goods we possess" (Letter to Queen Christina, 20 November 1647, AT V.85/CSMK III.326).

Freedom also plays an important theoretical role in the *Meditations* and *Principles of Philosophy*, when Descartes seeks to explain how people can err despite being created by a veracious God. Such a God, the meditator insists, "surely did not give me the kind of faculty [of judgment] which would ever enable me to go wrong while using it correctly" (*Meditations* IV, AT VII.54/CSM II.37–8). As a free agent, the meditator can use his faculty of judgment *incorrectly*, and that is why he can err.

The "faculty of judgment" is really two faculties working together: intellect and will. With the intellect, we passively perceive or understand propositions. With the will, we actively affirm or deny those same propositions, or else suspend judgment concerning them (*Med-*

itations IV, AT VII.56–7/CSM II.39–40). Affirmations or denials are acts of will or volitions.[1] The intellect may grasp a proposition perfectly—clearly and distinctly—or imperfectly, and either way the will can pass judgment on it. As Descartes says, "we can assent to many things which we know only in a very obscure and confused manner" (*Principles of Philosophy* I.34, AT VIIA.18/CSM I.204). However, "if in such cases I either affirm or deny, then I am not using my free will correctly" (*Meditations* IV, AT VII.59/CSM II.41). When our perceptions are obscure, we should suspend judgment. Flouting this rule courts error. Descartes concludes:

(p. 179)

> it is surely no imperfection in God that he has given to me freedom to assent or not to assent to things about which he has not placed a clear and distinct perception in my intellect. But it is undoubtedly an imperfection in me that I do not use that freedom well and make judgments about things that I do not rightly understand(*Meditations* IV, AT VII.60–1/CSM II.42; my translation)

Because we err freely, error is our responsibility, *not* God's.[2]

Ironically, though he recommends occupying "ourselves frequently in considering the nature of free will" (*Passions of the Soul* III.161, AT XI.454/CSM I.388), Descartes does not say much about that nature himself.[3] His remarks about it are scattered and highly ambiguous, and have given rise to many disputes among interpreters. Several different readings of Cartesian freedom—especially as it relates to determinism—remain viable competitors. This chapter will provide an opinionated survey of these disputes and competing interpretations.

1. Freedom and Two-Way Power

It is often claimed that a person did something freely only if she could have done otherwise. On this view, freedom is a "two-way" power to do something, or not do it. A first, relatively surface interpretative problem concerns whether Descartes thought of freedom in this way.

In the Fourth Meditation, in his only explicit definition of freedom, Descartes says:

> the will, or freedom of choice … [1] simply consists in this: that we are able to do or not do (that is, to affirm or deny, to pursue or avoid); or better [*vel potius*], [2] simply in this: that we are carried toward what the intellect proposes for affirmation or denial or for pursuit or avoidance in such a way that we do not feel ourselves determined to it by any external force. (AT VII.57/CSM II.40; my translation)

The first part of this definition seems to make two-way power essential to freedom. However, Descartes almost immediately goes on to say the following about the *cogito* inference:

> I was not able not to judge true something which I understood so clearly; not because I was compelled so to judge by any external force, but because a great light in the intellect was followed by a great inclination in the will, and thus I have believed this more spontaneously and freely as I have been less indifferent to it. (AT VII.58–9/CSM II.41; my translation)

(p. 180) This passage exemplifies a claim that Descartes articulates many times: "whenever we perceive something clearly, we spontaneously give our assent to it and are quite unable to doubt its truth" (*Principles of Philosophy* I.43, AT VIIA.21/CSM I.207). In such a case, the will "is drawn voluntarily and freely … but nevertheless inevitably, towards a clearly known good" (Second Replies, AT VII.166/CSM II.117).[4] This principle suggests that two-way power is not really necessary for freedom, leading some commentators to conclude that the "or better" in Descartes's definition of freedom must signal a retraction or downgrading of the first part in favor of the second. On this reading, Descartes's definition overall means that while freedom often involves two-way power, only self-determination (lack of determination by external forces) is essential to it.[5]

While it makes sense of the Fourth Meditation, the reading just sketched conflicts with two later texts.[6] First, in the *Principles of Philosophy* Descartes says:

> it is a supreme perfection in man that he acts voluntarily, that is, freely; this makes him in a special way the author of his actions and deserving of praise for what he does. We do not praise automatons for accurately producing all the movements they were designed to perform, because the production of these movements occurs necessarily. It is the designer who is praised … for in constructing [automatons] he acted not out of necessity but freely. By the same principle, when we embrace the truth, our doing so voluntarily is much more to our credit than would be the case if we could not do otherwise. (AT VIIA.19/CSM I.205)

Since we deserve credit only for assenting to what is clear and distinct,[7] the final line here implies that we are, in some sense, able to *refrain* from thus assenting.[8]

Second, in the 9 February 1645 letter to Mesland,[9] Descartes claims that people have "a positive faculty of determining oneself to one or other of two contraries, that is to say, to pursue or avoid, to affirm or deny", and that the will "has this faculty not only with respect to those actions to which it is not pushed by any evident reasons on one side rather than on the other, but also with respect to *all other actions*" (AT IV.173/CSMK III.245; emphasis added). So the will has self-determining two-way power even in cases of clear and distinct perception. Descartes renders this consistent (p. 181) with the compelling character of clear and distinct perceptions by distinguishing between two different senses of ability or power.

> … when a very evident reason moves us in one direction, although morally speaking we can hardly [*vix*][10] move in the contrary direction, absolutely speaking we can. For it is always open to us to hold back from pursuing a clearly known good,

> or from admitting a clearly perceived truth, provided we consider it a good thing to demonstrate the freedom of our will by so doing. (AT IV.173/CSMK III.245)

This “two senses” passage suggests that Descartes intended both parts of his Fourth Meditation definition to express the essence of freedom, but in different ways. Freedom is an “absolute” ability to do or not do[11] that we possess just in case we are self-determining (not determined to our action by an external force). There appears to be an emerging consensus in favor of such a reading.[12] But the bare notions of two-way power and self-determination are both highly ambiguous, so the consensus is rather superficial. The *real* work of understanding Cartesian freedom begins when we ask what “absolute” two-way power and “self-determination” really mean for Descartes.

2. Self-Determination and Determinism

Interpreters disagree about whether Descartes is—in contemporary terms—a compatibilist about freedom and determinism, or a libertarian (who believes that because the will is free, its volitions *must not* be determined). To grasp the heart of this interpretative difference, it helps to think about two different ways we can understand the “ability to do otherwise”: as hypothetical or categorical.

We say that a shining light bulb “can” go dark. It has a two-way power to shine or not, in the sense that it is the sort of thing that sometimes shines (when the light switch is on) but sometimes doesn’t (when the switch is off). Because the bulb’s behavior is determined by the light switch, when the bulb shines, it remains able to do otherwise only in a *hypothetical* sense: *if* the switch were off, it would not shine. Categorical two-way power is the ability to do something, or not do it, under the very same circumstances. Imagine that flipping the light switch on does not *determine* the bulb to shine, but merely *enables* it to decide whether to shine: with the switch on, it might shine, or it might not (p. 182) (with the switch still on). In this fanciful scenario, the bulb would be “able to go either way” in a *categorical* sense.[13]

When Descartes says that “absolutely speaking” the will *can* always withhold its assent, is this “can” categorical or hypothetical? As Lennon (2015: 63–6) notes, Descartes’s bare assertion of two-way power is ambiguous between these two readings, as was the Council of Trente’s affirmation of human freedom.[14] Just as Jesuits and Jansenists disagreed about the meaning of Trente, so scholars continue to disagree about the meaning of Descartes’s definition.

When Descartes defines freedom as lack of determination by an “external force”, libertarian readings take him to mean any force external to the *will*: the will is free only if it is the ultimate source of its own volitions. The will can be an ultimate source in this sense only if it enjoys categorical power over some of its volitions: in the very same circumstances, it might have produced those volitions, or not. Such volitions cannot be determined by prior

events (such as God's activity and/or the state of the intellect), making freedom incompatible with determinism.[15]

Compatibilist readings take the external forces in Descartes's definition to be external to the *mind*. The intellect, as an aspect of the same mind, can therefore determine the will's volitions "internally" without threatening freedom. Even when determined to assent by the intellect, the will still enjoys "absolute" two-way power: the *hypothetical* ability to withhold that assent under different intellectual circumstances. The will would retain such hypothetical two-way power even if it were *always* determined to act as it does. Let us now consider the strengths and weaknesses of two libertarian and two compatibilist readings.

2.1. Straightforward Libertarian Readings

Perhaps for Descartes the will's volitions are never determined, not even in cases of clear and distinct perception. On this reading, even as we clearly and distinctly perceive something, we are categorically able to deny it or at least to withhold assent from it.[16] What, then, does Descartes mean by suggesting that "morally speaking" we are unable to hold back?

He could mean that we are *morally required* to assent (but not psychologically compelled to do so), or that any psychological compulsion depends on our continuing resolution (p. 183) to reason properly.[17] However, Descartes insists that we are *naturally constituted* to assent to clear and distinct perceptions: "The minds of all of us have been *so molded by nature* that whenever we perceive something clearly, we spontaneously give our assent to it and are quite unable to doubt its truth" (*Principles of Philosophy* I.43, AT VIIIA.21/CSM I.207; emphasis added) and "*the nature of my mind* is such that I cannot but assent to these things … so long as I clearly perceive them" (*Meditations* V, AT VII.65/CSM II.45; emphasis added).[18] More plausibly, Embry (2016) suggests that withholding assent from clear perceptions is "morally impossible" because the odds of it happening are astronomically low, despite its conceptual and metaphysical possibility (like rolling a six a thousand times in a row with a fair die). This reading finds precedent in late Scholastic accounts of "moral" modality in probabilistic terms, and comports very well with Descartes's own usage of terms like "morally impossible" in other contexts.[19]

The most serious problem for a straightforward libertarian reading is that the passage most heavily cited in its favor—the two senses passage—does not really support it.

Even if the two senses passage implies that we can categorically withhold assent from *P* while clearly and distinctly perceiving *P along with a contrary motive* (such as the thought that it would be good to thus prove our freedom),[20] it does not follow that the will can categorically withhold assent from *P* in every circumstance. For we might clearly and distinctly perceive *P* all by itself, and in that case Descartes's theory of motivation implies that holding back is categorically impossible.

Descartes holds that we are inclined towards a course of action—including the action of assenting—only if it appears somehow good, and that we are psychologically capable of doing something only if we are somehow inclined toward it—i.e. if we *want* to do it for some reason.[21] When we perceive some proposition *P* obscurely, we will be inclined to assent to it (for the reasons suggesting its truth), but at the same time also inclined to withhold our assent (if only because the reasons in support of *P* are inconclusive) (*Meditations* IV, AT VII.59/CSM II.41). But if we clearly and distinctly perceive *P* (and are not thinking of anything else) then we will see assenting to *P* as good, and will have no reason to hold back. Desiring only to assent, we will be categorically unable to do anything else. Hence Descartes says that "it is always open to us to hold back … *provided* we consider it a good thing to demonstrate the freedom of our will" (Letter to [Mesland], 9 February 1645, AT IV.173/CSMK III.245; emphasis added). If we could hold back even when inclined only in one direction, then there would be no need to add this proviso.[22]

(p. 184) 2.2. Subtle Libertarian Readings

Descartes seems to hold that at least some clear and distinct perceptions determine the will. The will's power to withhold assent from these perceptions is merely hypothetical (Wee 2014: 193). But a libertarian reading is not yet ruled out. Perhaps Descartes thought that whenever belief or action is thus determined by clear perception, the person remains free only because she earlier decided (in an exercise of categorical two-way power) to bring about the clear perception. On this picture, the will remains *indirectly* self-determining in a libertarian sense, even when it is determined by the intellect's perception.

There is evidence for this picture in Descartes. He says that "making our perception of the primary notions clear and distinct" (Second Replies, AT VII.157/CSM II.111) depends on paying sufficient attention to what we are thinking about: "I call a perception 'clear' when it is present and accessible to the *attentive* mind" (*Principles of Philosophy* I.45, AT VIIIA.22/CSM I.207).[23] And paying attention is a voluntary action. Descartes speaks of the "volition" or decision "to fix our attention for some time on some particular object" (*Passions of the Soul* I.43, AT XI.361/CSM I.344) or "to apply our mind to some object which is not material" (*Passions of the Soul* I.18, AT XI.343/CSM I.335). If the will necessarily enjoys a categorical two-way power over this direction of attention, the libertarian conditions for freedom are satisfied.

Wee (2014) emphasizes the will's role in *sustaining* attention to what we already clearly perceive. Descartes says in one place: "if we see very clearly that a thing is good for us, it is very difficult—and, on my view, impossible, *as long as one continues in the same thought*—to stop the course of our desire" (Letter to [Mesland], 2 May 1644, AT IV.116/CSMK III.233; emphasis added). Emphasizing this passage, Wee (2014: 192) suggests that "there is always a temporal gap" between the will's initial clear perception of a truth or a good, and its subsequent assent or pursuit, so that "it is in principle always possible … to shift attention to some other thought *before* the will affirms or pursues". However, Descartes seems to deny this temporal gap in the Second Replies. He says that "*as soon as* we think that we correctly perceive something, we are spontaneously convinced that it

is true" (AT VII.144/CSM II.103; emphasis added), and that we "cannot think of [clear perceptions] without *at the same time* believing that they are true" (AT VII.146/CSM II. 104; emphasis added). Sustaining attention to a clear perception takes voluntary effort for Descartes, but may not ground a libertarian reading in the way Wee suggests.

Nevertheless, for Descartes the will also helps bring about clear perception in the first place by directing attention to immaterial objects. Newman (2015: 63) distinguishes between the will's doxastic function (assenting to a proposition or suspending judgment) and its attentional function (deciding what to attend to, and in what way). On his reading of Descartes, the intellect's contents always determine the doxastic function, but (p. 185) the will enjoys an undetermined, categorical two-way power over its attentional volitions (and hence over the intellect's contents) (Newman 2015: 80–4). Therefore, the will's libertarian freedom over judgment is exercised indirectly, via its attentional volitions. Though plausible in many respects, Newman's reading faces two problems.

First, in the Fifth Replies, Descartes suggests that in cases of non-clear-and-distinct perception, the will has "the freedom to direct itself, without the determination of the intellect, towards one side or the other" (AT VII.378/CSM II.260). This suggests a direct and categorical two-way power over assent in some cases.[24] So the range of undetermined freedom for Descartes may be greater than Newman suggests, holding not only for the attentional function, but also for the doxastic function in cases of obscure perception.

Second, and more importantly, even if Descartes attributes libertarian-style self-determination of the will to actually existing humans, that is not enough to make Descartes a libertarian. Libertarians insist on a *conceptual* connection between freedom and indeterministic ultimate control, such that the former *cannot possibly exist* without the latter. But Descartes seems to embrace this possibility. In the Fourth Meditation, he says:

> God could easily have brought it about that without losing my freedom, and despite the limitations in my knowledge, I should nonetheless never make a mistake. He could, for example … have impressed it unforgettably on my memory that I should never make a judgment about anything which I did not clearly and distinctly understand. (AT VII.61/CSM II.42)

God could have made people who were *always* aware of the rule for correct assent. Descartes says that this rule is "clear by the natural light", so that one cannot think of it without clearly perceiving—and hence believing—it (*Meditations* IV, AT VII.145/CSM II. 104; *Principles of Philosophy* I.30, AT VIIIA.16/CSM I.203). So in continually *thinking* of the rule, these people would continually assent to its truth, and this assent would not depend on any of their prior decisions about how to direct their attention. Nevertheless, these people would still be free, still "absolutely speaking" able to withhold assent from the rule, because they would be able to do so *if* they perceived it unclearly.

2.3. “Soft Determinist” Readings

It appears, then, that for Descartes freedom *requires* only a hypothetical two-way power. People possess the “absolute” ability to “do or not do” just in case they are capable of sometimes going one way and sometimes another; they do not need to be able to go either way *in the same circumstances* (Cunning 2010: 134–5). Freedom thus understood (p. 186) is compatible with a complete and thorough determinism, raising the possibility that Descartes is a “soft determinist” (who believes that the will is free despite being always determined in its actions).[25] This reading gets traction from passages in which Descartes seems to assert a thoroughgoing intellectual or theological determinism.

For example, Descartes says that during childhood, the mind was “a total slave to the body” (*Principles of Philosophy* I.72, AT VIIIA.36/CSM I.219), with judgments determined by unclear sense perceptions (see *Principles of Philosophy* I.47, ATVIIIA.22/CSM I.208). More importantly, when describing the impact of non-clear-and-distinct perceptions on the *adult* will, Descartes says:

> For although probable conjectures may pull me in one direction [*me trahant in unam partem*], the mere knowledge that they are simply conjectures, and not certain and indubitable reasons, is itself quite enough to push my assent the other way [*assensionem meam in contrarium impellendam*]. (*Meditations* IV, AT VII.59/CSM II.41)

The verbs ‘push’ and ‘pull’ here are suggestive of determinism, especially when read in light of the following: “before we can decide to doubt, we *need* some reason for doubting” (Appendix to Fifth Objections and Replies, AT IXA.204/CSM II.270; emphasis added). If the merely “probable conjectures” do not by themselves determine the will’s assent, then why would Descartes suggest that doubt—suspending of judgment—is *impossible* unless one is aware of contrary considerations?[26]

Descartes often seems to endorse theological determinism in his reflections on God’s creative power. God is the “total cause of everything” so that “the least thought cannot enter the mind of man if God has not wished and willed from all eternity that it enter therein” (Letter to Princess Elisabeth, 6 October 1645, AT IV.314/CSMK III.272), and “nothing can possibly happen other than as Providence has determined from all eternity”, making Providence “a fate or immutable necessity” (*Passions of the Soul* II.145, AT XI. 438/CSM I.380). Though Descartes sometimes exempts free will from this necessity (AT XI.439/CSM I.380), at other times he seems to include it: “all the reasons that prove that God exists and is the first and immutable cause of all effects that do not depend on human free will prove similarly, I think, that he is also the cause of all the effects that do so depend” (Letter to Princess Elisabeth, 6 October 1645, AT IV.314/CSMK III.272). Such passages suggest that “God wills for all eternity that we have whatever ideas we have at a given moment, and He wills the volitions that are affirmations of those ideas” (Cunning 2010: 140).

Sometimes, Descartes sounds like a Spinoza-style necessitarian. He maintains that "There is always a single identical and perfectly simple act by means of which [God] simultaneously understands, wills, and accomplishes everything" (*Principles of Philosophy* I.23, AT VIIIA.14/CSM I.201), so that "God … necessarily made the decrees he did … he (p. 187) is not prior to them or distinct from them, nor could he have existed without them" (*Conversation with Burman*, AT V.166/CSMK III.348).[27] Necessarily, God wills as God does—from which our thoughts and actions necessarily follow, making our actions, too, necessary. But God is still free because self-determining (see Sixth Replies, AT VII. 431–3/CSM II.291–2). God's freedom is therefore compatibilist. Since Descartes emphasizes the similarity of divine and human freedom (*Meditations* IV, AT VII.57/CSM II.39–40), his claims about divine freedom seem to imply compatibilism about human freedom as well.[28]

However, many texts also weigh against a soft determinist reading. First, in the Fifth Replies, Descartes explicitly denies that the intellect can determine the will to err: "there would be a total contradiction involved in the intellect's apprehending falsity under the guise of truth; but this would have to be the case if the intellect were ever to determine the will to embrace what is false" (AT VII.378/CSM II.260). Since we do err, our erroneous judgments must have been undetermined: "the will had the freedom to direct itself, without the determination of the intellect, towards one side or the other" (AT VII.378/CSM II.260). So when Descartes says that God "has given me the freedom to assent or not to assent in those cases where he did not endow my intellect with a clear and distinct perception" (*Meditations* IV, AT VII.61/CSM II.42), he likely means that the will has a categorical two-way power in those cases, thereby rejecting a thoroughgoing intellectual determinism.

Descartes's insistence on our ability to avoid error also works against reading him as a theological determinist. As Cunning (2010: 137) admits, if theological determinism is true, then "we cannot avoid error in cases where God has preordained that we make an affirmation that is false". But Descartes says that "we are able to take precautions against going wrong on any occasion" (*Principles of Philosophy* I.6, AT VIIIA.6/CSM I.194), implying that theological determinism is false.

The Fourth Meditation's explanation of error also works against a compatibilist reading. Descartes says:

> In this incorrect use of free will may be found that privation which constitutes the essence of error. The privation, I say, lies in the operation of the will in so far as it proceeds from me, but not in the faculty of will which I received from God, nor even in its operation, in so far as it depends on him. (AT VII.60/CSM II.41)

Our free causation of error entails that God does *not* cause it. But on compatibilism, this entailment does not hold: God can cause us to freely cause error, so that God *also* causes that error.

On the other hand, the Fourth Meditation "theodicy of error" may not reveal Descartes's own true metaphysical position. As the *Meditations* progress, the meditator (p. 188) learns that some of the things he originally thought possible (such as a deceiving God) are not really so. Therefore, it would be a mistake to attribute many of the meditator's initial claims to Descartes. Similarly, the meditator may not speak for Descartes in the Fourth Meditation.[29]

However, Descartes himself seems to embrace the Fourth Meditation's theodicy in other contexts. For example, in the *Principles of Philosophy* he says that we "experience within us the kind of freedom which enables us always to refrain from believing things which are not completely certain" (I.6, AT VIIIA.6/CSM I.194), that "it is a complete contradiction to suppose that [God] might … be, in the strict and positive sense, the cause" of our errors (I.29, AT VIIIA.16/CSM I.203), and that "it must not in any way be imagined" that God is the "author of our errors" (I.36, AT VIIIA.18/CSM I.205).

The following remarks about providence are probably the best reason to consider Descartes a theological indeterminist.

> We can easily get ourselves into great difficulties if we attempt to reconcile … divine preordination with the freedom of our will, or attempt to grasp both these things at once … But we shall get out of these difficulties if we remember that our mind is finite, while the power of God is infinite … We may attain sufficient knowledge of this power to perceive clearly and distinctly that God possesses it; but we cannot get a sufficient grasp of it to see how it leaves the free actions of men undetermined. Nonetheless, we have such close awareness of the freedom and indifference which is in us, that there is nothing we can grasp more evidently or more perfectly. And it would be absurd, simply because we do not grasp one thing, which we know must … be beyond our comprehension, to doubt something else of which we have an intimate grasp and which we experience within ourselves. (*Principles of Philosophy* I.40–1, AT VIIIA.20/CSM I.206)

Although we cannot possibly understand *how* God's power and providence leaves our free actions undetermined, we can be sure *that* it does so.

According to Cunning (2014: 80–1), this passage "says that we have an experience of freedom and independence that is in tension with [the doctrine of preordination] … it is difficult to understand why such an experience would be included in the series of creatures … but we do understand that God has preordained everything". In other words, Descartes affirms not the reality of indeterminism, but the reality of the (non-veridical) *feeling* of indeterminism. This gloss faces two problems. First, if the experience of freedom is not veridical, then why is Descartes puzzled? There are no "great difficulties" in seeing how such experience could exist in a theologically determined series. Even if everything is causally determined, we are for the most part ignorant of the causes of our actions. From our perspective, an action with an unknown prior cause and an action without such a cause would look the same. So given our epistemic limitations, it is not (p. 189) puzzling or surprising that our actions *seem* undetermined.[30] Second, and more impor-

tantly, Descartes quite clearly thinks that the experience of freedom *is* veridical. He says: "That there is freedom in our will, and that we have power in many cases to give or withhold our assent at will, is so evident that it must be counted among the first and most common notions that are innate in us … [and] as self-evident and transparently clear as anything can be" (*Principles of Philosophy* I.39, AT VIIIA.19–20/CSM I.205–6). Our perception of our own actions as undetermined is clear and distinct, and so must be true—despite the fact that we will never understand *how* it is true.[31]

Descartes does not seem to be a libertarian incompatibilist, but his puzzlement about freedom and providence shows that he cannot be a standard compatibilist either. On a standard compatibilist account, God could predetermine us to err without undermining our freedom. Descartes, by contrast, thinks that our erring freely implies that our errors are undetermined—hence the worry about seemingly deterministic divine providence.

2.4. An Asymmetrical Compatibilist Reading

Descartes seems to hold that in the actual world—where we often err—human freedom requires indeterminism; however, in other (more ideal) possible scenarios, freedom coexists with determinism. At first glance, these claims may seem inconsistent, a strange mishmash of libertarianism and compatibilism. But there is an underlying logic to the view. For Descartes, freedom requires indeterminism in scenarios involving error or sin, but not in scenarios where people always do the right thing. These requirements follow if freedom is *the categorical ability to get things right*. Those determined to err lack this ability, and so lack freedom. But those determined to do the right thing are (trivially) *able* to get things right, and so are free. Determination towards praiseworthy action and determination towards blameworthy action do not have a symmetrical impact on freedom.

The ability to get things right follows, in turn, from Descartes's more fundamental conception of freedom as self-determination—as "being carried toward what the intellect proposes … in such a way that we do not feel ourselves determined to it by any external force" (*Meditations* IV, AT VII.57/CSM II.40; my translation). The "internal" here—the "self" in self-determination—is not simply the mind, but the *rational* mind. Descartes holds that "there is only one soul in human beings, the rational soul; for no actions can be reckoned human unless they depend on reason" (Letter to Regius, May 1641, AT III.371/CSMK III.182). The rational mind is the distinctively human, purely thinking (p. 190) part of us. As designed by a perfect God, this thinking substance—when unhindered by the body—goes after truth and goodness. By its nature, it determines itself to assent to the true and pursue the good. But through its union with the body, the mind often loses its clarity, making it possible for us to err. Any force, even an obscure idea in one's own intellect, counts as "external" insofar as it inclines us away from truth or goodness. For Descartes, to be free is to be undetermined by anything *except* one's own reason—where reason is not simply a faculty of thinking, but of *correct* thinking.[32]

A perfect God would influence us only towards truth and goodness, and so could not count as an external force in this sense. And yet, Descartes insists, everything that hap-

pens—including our mistakes—happens in accord with God's eternal providential plan. How can this be? In correspondence with Princess Elisabeth, Descartes suggests the following answer: before creating, God knows what any possible creature would freely choose to do in any possible situation she might face. To realize the providential plan, God simply needs to create creatures who will freely fulfill it of their own accord (Letter to Princess Elisabeth, January 1646, AT IV.353/CSMK III.282). God can arrange for us to err in this way without *causing* us to err. While this Molinist-style solution seems to confirm Descartes's incompatibilism about freedom and determination towards error, it is hard to see how he can make it work. For he insists that God freely created the "eternal truths",[33] including truths about what possible creatures would freely choose, and this seems to make God ultimately responsible for our errors, even if not directly causing them.[34]

In the end, no interpretation of Cartesian freedom is without difficulty. When read in light of the creation doctrine of eternal truths, Descartes's reconciliation of providence and freedom makes the most *philosophical* sense on the assumption that he is a soft determinist. But that reading seems to conflict with many passages emphasizing our categorical ability to avoid error. The asymmetrical reading, on the other hand, seems to best fit the most texts, but leaves Descartes with an intractable philosophical problem. In the end, it is unclear how much weight should be given to the textual or philosophical considerations, and interpreters cannot avoid the risk of error.

References

Alanen, Lilli K. (2002), "Descartes on the Will and the Power to Do Otherwise", in Henrik Lagerlund and Mikko Yrjönsuuri (eds.), *Emotions and Choice from Boethius to Descartes*. Dordrecht: Kluwer Academic Publishers, 279–98.

Alanen, Lilli K. (2014), "The Role of Will in Descartes' Account of Judgment", in Karen Detlefsen (ed.), *Descartes' Meditations: A Critical Guide*. Cambridge: Cambridge University Press, 176–99.

(p. 191) Alquie, Ferdinand (1950), *La Decouverte Metaphysique De L'homme Chez Descartes*. Paris: Presses Universitaires De France.

Beyssade, Michelle (1994), "Descartes's Doctrine of Freedom: Differences between the French and Latin Texts of the Fourth Meditation", in John Cottingham (ed.), *Reason, Will, and Sensation: Studies in Descartes's Metaphysics*. Oxford: Clarendon Press, 191–206.

Carriero, John Peter (2009), *Between Two Worlds: A Reading of Descartes's Meditations*. Princeton: Princeton University Press.

Christofidou, Andrea (2013), *Self, Reason, and Freedom: A New Light on Descartes' Metaphysics*. New York: Routledge.

Collins, Brian (2013), "Adding Substance to the Debate: Descartes on Freedom of the Will", *Essays in Philosophy* 14 (2): 218–38.

Cunning, David (2010), *Argument and Persuasion in Descartes' Meditations*. New York: Oxford University Press.

Cunning, David (2014), "The First Meditation: Divine Omnipotence, Necessary Truths, and the Possibility of Radical Deception", in David Cunning (ed.), *The Cambridge Companion to Descartes' Meditations*. Cambridge: Cambridge University Press, 68–87.

Embry, Brian (2016), "Descartes on Free Will and Moral Possibility", *Philosophy and Phenomenological Research* 96 (2): 380–98.

Fogal, Daniel (2017), "Descartes and the Possibility of Enlightened Freedom", *Res Philosophica* 94 (4): 499–534.

Gilson, Étienne (1913), *La Liberté Chez Descartes Et La Théologie*. Paris: Alcan.

Hatfield, Gary (2014), *The Routledge Guidebook to Descartes' Meditations*. London and New York: Routledge.

Jayasekera, Marie (2014), "Descartes on Human Freedom", *Philosophy Compass* 9 (8): 527–39.

Jayasekera, Marie (2016), "Responsibility in Descartes's Theory of Judgment", *Ergo: An Open Access Journal of Philosophy* 3 (12): 321–47.

Jayasekera, Marie (forthcoming), "Imitation and 'Infinite' Will: Descartes on the Imago Dei", in Daniel Garber and Donald Rutherford (eds.), *Oxford Studies in Early Modern Philosophy* 8. Oxford: Oxford University Press.

Kenny, Anthony (1972), "Descartes on the Will", in R. J. Butler (ed.), *Cartesian Studies*. Oxford: Blackwell, 1–31.

Lennon, Thomas (2013), "Descartes's Supposed Libertarianism: Letter to Mesland or Memorandum Concerning Petau?", *Journal of the History of Philosophy* 51 (2): 223–48.

Lennon, Thomas (2014), "The Fourth Meditation: Descartes' Theodicy *Avant La Lettre*", in David Cunning (ed.), *The Cambridge Companion to Descartes' Meditations*. Cambridge: Cambridge University Press, 168–85.

Lennon, Thomas (2015), "No, Descartes is *Not* a Libertarian", in Daniel Garber and Donald Rutherford (eds.), *Oxford Studies in Early Modern Philosophy* 7. Oxford: Oxford University Press, 47–82.

Moyal, Georges J. D. (1996), "Magicians, Doubters and Perverts", *Revue Internationale de Philosophie* 50 (195): 73–107.

Newman, Lex (2015), "Attention, Voluntarism, and Liberty in Descartes' Account of Judgment", *Res Philosophica* 92 (1): 61–91.

Petrik, James M. (1993), *Descartes' Theory of the Will*. Durango, CO: Hollowbrook.

Ragland, C. P. (2005), “Descartes on Divine Providence and Human Freedom”, *Archiv für Geschichte der Philosophie* 87 (2): 159–88.

Ragland, C. P. (2006), “Is Descartes a Libertarian?”, in Daniel Garber and Steven M. Nadler (eds.), *Oxford Studies in Early Modern Philosophy* 3. Oxford: Oxford University Press, 57–90.

(p. 192) Ragland, C. P. (2016), *The Will to Reason: Theodicy and Freedom in Descartes*. New York: Oxford University Press.

Schmaltz, Tad M. (2000), “The Disappearance of Analogy in Descartes, Spinoza, and Regis”, *Canadian Journal of Philosophy* 30 (1): 85–113.

Schmaltz, Tad M. (2007), *Descartes on Causation*. New York: Oxford University Press.

Schouls, Peter A. (1989), *Descartes and the Enlightenment*. Montreal: McGill-Queens University Press.

Wee, Cecilia (2014), “The Fourth Meditation: Descartes and Libertarian Freedom”, in David Cunning (ed.), *The Cambridge Companion to Descartes’ Meditations*. Cambridge: Cambridge University Press, 186–204.

Notes:

([1]) For studies of Descartes’s motivations in adopting this rather unique view, see Kenny 1972 and Jayasekera 2016. See also Lennon 2014: 170–6.

([2]) For similar readings, see Lennon 2014: 168–9, 2015: 52–3, and also Wee 2014: 186–7.

([3]) On Descartes’s motives for this, see Lennon 2015: 49.

([4]) For similar passages, see *Meditations* V, AT VII.69/CSM II.48; Second Replies, AT VII.145/CSM II.104; Letter to Regius, 24 May 1640, AT III.64/CSMK III.147; Letter to [Mesland], 2 May 1644, AT IV.115–16/CSMK III.233–4).

([5]) For this sort of reading, see Kenny 1972 and Beyssade 1994.

([6]) Such conflict is not a problem if Descartes changed his mind about freedom over time, as suggested by Gilson 1913, Alquie 1950, and Schmaltz 2007.

([7]) In the Fourth Meditation, Descartes imagines a scenario in which some proposition *P* is true, but not clearly perceived. If I believe *P* in these conditions, “then it is by pure chance that I arrive at the truth, and I shall still be at fault” (AT VII.60/CSM II.41). Compare *Principles of Philosophy* I.44, AT VIIIA.21/CSM I.207.

([8]) Ragland (2016: 123–4) and Wee (2014: 190–1) read the “automaton passage” this way. For opposing readings, see Cunning 2010: 132–3, Christofidou 2013: 154–7, and Petrik 1993: 69–73.

([9]) Lennon (2013) provides good reasons to think that Adam and Tannery's label for this text is erroneous; nevertheless, I use this now standard label.

([10]) Contrary to the reading offered here, Lennon (2015: 69–70) reads the "vix" as affirming a moral ability to hold back. For a compelling response to Lennon, see Embry 2016: 3, note 9.

([11]) As Wee (2014: 192) notes: "if freedom is demonstrated by the ability *not* to pursue or assent to what is clearly known, the ability to do otherwise is necessary for freedom".

([12]) See for example Petrik 1993: 85–7, Ragland 2016: 84–106, Schmaltz 2007: 196–7, Carriero 2009: 255–8, Lennon 2015: 56–62, 70, Hatfield 2014: 200–4, Wee 2014: 189, and Fogal 2017: 505.

([13]) For a thorough discussion of the hypothetical/categorical distinction, as well as a slightly different distinction between "general" and "specific" ability which may serve roughly the same interpretative purposes, see Fogal 2017: 509–21.

([14]) Trente affirmed that the human will has the power to resist the impulses of divine grace *if* it should so will. See Lennon 2015: 63 and 2014: 177–8.

([15]) "Determinism" here denotes the claim that *every* volition is determined by a prior cause.

([16]) Alquie (1950: 286) and Moyal (1996: 78) suggest the ability to deny clear perceptions, while Alanen (2002: 294) posits merely the ability to withhold assent from them.

([17]) See Moyal 1996: 101–2, Alanen 2014: 197, and Embry 2016: 7.

([18]) Compare *Meditations* V, CSM II.48/AT VII.69; Letter to Regius, 24 May 1640, AT III. 64/CSMK III.147; *Principles of Philosophy* I.13, AT VIIIA.9/CSM I.197. See also Newman 2015: 68.

([19]) See French *Principles of Philosophy* IV.205, AT IXB.323/CSM I.289 n2 and *Discourse on the Method* IV, AT VI.37–8/CSM I.130, as well as other passages quoted in Embry 2016.

([20]) See Ragland 2006: 83–6 for this kind of reading.

([21]) See *Passions of the Soul* III.177, AT XI.464/CSM I.392 and Letter to Mersenne, End of May 1637, AT I.366/CSMK III.56.

([22]) As Embry (2016: 4) puts it, the proviso "seems to presuppose that clear and distinct [perceptions] are determining in the absence of countervailing motives". For a more substantial treatment of the argument in this paragraph, see Ragland 2016: 133–8.

([23]) See also *Rules for the Direction of the Mind* III, AT X.368/CSM I.14 and *Conversation with Burman*, AT V.146/CSMK III.332–3.

([24]) For alternative readings of this text, see Petrik 1993: 80–4, Newman 2015: 66–7 and 71, Lennon 2015: 51–6, and Collins 2013: 225–6.

([25]) Cunning (2010, 2014) and Petrik (1993) affirm this interpretation.

([26]) Newman (2015: 69–73) offers a more thorough argument for the main point of this paragraph. See also Lennon 2015: 54.

([27]) The passage quoted here stands in some tension with Descartes's claims that God arbitrarily and indifferently created the eternal truths. See the passages referenced in note 33.

([28]) For more on differences and similarities between divine and human freedom in Descartes, see Schmaltz 2000, Collins 2013, Jayasekera 2014: 527–39, and Jayasekera forthcoming.

([29]) See Cunning 2010: 3, 10–11, 130, 133–4.

([30]) Descartes himself suggests that ignorance of causes can generate false appearances of possibility at *Passions of the Soul* II.145, AT XI.438/CSM I.380.

([31]) As David Cunning has pointed out to me in personal correspondence, those who read Descartes as a soft determinist can affirm that the feeling of freedom is veridical, because we really are free, in a compatibilist sense: the will is not determined by anything *but* the intellect (and indirectly, God). But on this construal of the "sense of freedom", there is no obvious tension between it and the doctrine of providence, a tension that Descartes clearly affirmed.

([32]) For a contrasting account, see Schouls 1989: 77.

([33]) See Letter to Mersenne, 15 April 1630, AT I. 145/CSMK III.22–3; Letter to [Mesland], 2 May 1644, AT IV.118–19/CSMK III.235; Sixth Replies, AT VII.431–3/CSM II.291–2.

([34]) For more on providence and freedom, see Ragland 2005 and 2016, and Wee 2014: 194–200.

C. P. Ragland

Department of Philosophy, Saint Louis University

Descartes and the Passions

Denis Kambouchner

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Abstract and Keywords

This chapter focuses on the Cartesian account of the passions of the soul, as it is delivered for the most part in the treatise published in 1649. This account includes several aspects which have to be both distinguished and related to each other: 1) the decision to locate the “most proximate cause” of the passions in the body, and its connection with the Cartesian tenet of the indivisibility of the soul; 2) the reconstruction of the cerebral and physiological process which produces passion in the soul; 3) the distinction between the passions and other kinds of perception; 4) the definition of their function or usefulness; and 5) the classification of the passions and the distinction between “simple and primitive” and “particular” passions, with its ethical and practical implications.

Keywords: mind, passion, sensation, emotion, virtue

(p. 193) DESTINY resolved that the passions would be the final grand project of Descartes’s philosophical work. After preparing a first draft of the *Passions of the Soul* for Princess Elisabeth, between late 1645 and early 1646, Descartes put the work aside for more than two years. It was not until the end of 1648 and early 1649 that he completed a version expanded “by a third”.[1] This appeared at the end of 1649.[2] The author did not get to see the work’s Latin translation (*Passiones Animae*, published by Elsevier in Amsterdam in 1650, the year of his death), as Spinoza and other thinkers across Europe would.

1. A New Science of the Human Being

In May, 1646, Descartes described the passions to Elisabeth as a subject that, to date, he had “never studied”.[3] This is essentially correct. One does find in earlier works, and already in the *Compendium of Music* of 1618, some remarks on the human passions.[4] But other than an important article at the end of the *Principles of Philosophy* (IV190), it is true that no Cartesian text prior to the fall of 1645 takes up the question of the passions of the soul, their nature, and their “usage”.

Descartes's decision to compose a treatise on the passions cannot be explained without considering the fate of this genre from the end of the sixteenth century, especially in France. In this period, which saw the rediscovery of ancient Stoicism followed by the European diffusion of a neo-Stoic movement, the question of the nature of the passions (p. 194) and their "usage" (that is, their utility and their mastery)[5] became an essential topic in moral reflection that was henceforth thoroughly secularized. This was the question on which doctrines as different as Thomistic Scholasticism, Augustinianism, and neo-Stoicism both clashed and, when appropriate, blended. It is also through this question, with its physiological or medical dimension, that the project of an exact knowledge of the nature of the human being could finally be pursued. An oft-read series of works by the neo-Stoic Flemish thinker Justus Lipsius (*On Constancy* [*De Constantia*], 1584; *Guide to Stoic Philosophy* [*Manuductio ad stoicam philosophiam*], 1604); the French magistrate Guillaume du Vair (*The Moral Philosophy of the Stoics* [*La Philosophie morale des Stoïques*], 1585); Pierre Charron (*On Wisdom* [*De la Sagesse*], 1601); Bishops Jean-Pierre Camus (*Treatise on the Passions of the Soul* [*Traitté des passions de l'âme*], 1614), François de Sales (*Treatise on the Love of God* [*Traité de l'amour de Dieu*], 1616), and Nicolas Coëffeteau (*Table of the Human Passions, Their Causes and Their Effects* [*Tableau des passions humaines, de leurs causes et de leurs effets*], 1620); the physician Marin Cureau de la Chambre (*The Characters of the Passions* [*Les caractères des passions*], 1640); or the Abbé Senault (*On the Usage of the Passions* [*De l'usage des passions*], 1641) all testify to the intensity of these preoccupations with and debates over the passions.[6]

There was nothing fortuitous or unintentional about Descartes's relative lateness in addressing the question of the passions. In Cartesian philosophy, this question is attached to the theory of the human being and morality, "parts of philosophy that one can only learn last".[7] It is true that an early presentation of Cartesian physiology existed in 1632–3 in hypothetical form in the *Treatise on Man*. But aside from some remarks in the *Discourse on Method* and in the *Dioptric*, Descartes had not yet really delivered much. In fact, it is in the *Passions of the Soul* that the elements of this Cartesian physiology, as well as the precise modes of the interaction between soul and body, are presented for the first time.

It is true, as well, that Descartes could not undertake a treatise on the passions unless he felt that he was capable of renovating the genre and of showing on this oft-disputed topic the superiority of his own philosophy—just as he did for the rainbow in the *Meteorology*. This ambition is expressed clearly enough in the first lines of the treatise, where, without deigning to say a word about the recent literature on the subject, Descartes writes:

> The defectiveness of the sciences we inherit from the ancients is nowhere more apparent than in what they wrote about the passions […] What [they] taught about them is so little, and for the most part so little believable, that I cannot hope to approach the truth unless I forsake the paths they followed. For this reason I shall be obliged to write here as though I were treating a topic which no one before me had ever described. (Art. 1, AT XI.327–8/V 18–19)

(p. 195) The same desire to break with tradition, however diversified that tradition may be, is expressed in this other famous declaration that occurs at the end of a curious exchange of letters that serves as a preface for the work: “My purpose has not been to explain the passions as an orator, or even as a moral philosopher, but only as a physicist” (AT XI.326/V 17). This signifies that Descartes will not only be interested in a close examination of the physiological aspects of passionate phenomena and in dissipating the errors traditionally committed on this topic because of a poor knowledge of the human body and the way in which the human soul is united to it. In contrast with the grand rhetorical deployments which had been brought to the subject, Descartes intended to achieve a new exactitude in the study of all the dimensions of passionate affectivity, taking his start from both the ordinary certainty afforded by his method and the new certainty of the principles of his philosophy.

In the Scholastic tradition, the soul was characterized, at one and the same time, by its constitutive relation to the body and by the hierarchy of its faculties, which hierarchy was itself grounded on the plurality of its parts. Corresponding to the distinction between the sensitive soul and the rational soul was, in the realm of emotion, a distinction between rational appetite, or will, and sensitive appetite, which is the proper locus of the passions. Sensitive appetite itself includes two functions, “irascible” and “concupiscible”, which, in the Scholastic context, along with rational appetite, represent a reconstitution of the Platonic tripartite division of the soul.[8] The emotions that are called the passions of the soul are thus “the motions of the sensitive appetite”. Because this involves a part of the soul that is not separable from the body, the Scholastic approach to passion makes it, as well, an “action of the soul and body together”.[9] And because this action generally follows the sudden and lively apprehension of a good or bad thing, the *standard* definition of passion is thus “a motion of the sensitive appetite, caused by the apprehension of a good or bad thing, and followed by a change that happens in the body contrary to the laws of nature”.[10]

For Descartes, however, the rational soul or mind, a purely thinking thing, is not divisible into parts that act independently of each other. The *Passions of the Soul* remind us that

> There is only a single soul in us, and this soul has within itself no diversity of parts; the very one that is sensitive is rational, and all its appetites are volitions. (Art. 47, AT XI.364/V 44)

It is thus wrong to imagine, as Plato did, followed by Saint Augustine and by the Schools, that there is a conflict within the human soul between the part that desires and the rational part (that is, between the “sensitive appetite” and the “rational appetite” or will):

(p. 196)

> The error which has been committed in having it play different characters, usually opposed to one another, arises only from the fact that its functions have not been rightly distinguished from those of the body, to which alone must be attributed

> everything to be found in us that is opposed to our reason (Art. 47, AT XI.364/V 44–5)

If we are committed to speaking of the passions as certain strong emotions that are often sudden and difficult to moderate, it is not possible for these passions to come to us directly from external objects. They can be excited in the soul only by the "subject that acts most immediately upon it", that is, "the body to which it is united" (Art. 2). A passion, in this sense, can be only the after-effect in the soul of a certain emotion in the body—a body that, by itself, can react to a certain situation, encounter or imagine an object, "without the soul contributing anything" (Art. 38). Looked at in this way, Descartes could have said, with William James, that "we do not cry because we are sad; we are sad because we are crying";[11] and the anti-Cartesianism of certain modern theorists of the emotions comes from a real historical misunderstanding.[12]

2. The Passions as Physical Phenomena

In the Cartesian scheme, the passions of the soul are put on the same plane as sensory perceptions. These functions do not overlap, but they do complement each other and form an integral system. Descartes deals with them jointly at the end of the *Principles of Philosophy*, evoking, just before a quick study of the five "exterior senses", the two "interior senses"—one of which is called "natural appetite" and covers thirst, hunger, sexual desire, and the internal expression of other bodily needs; the other covers the range of emotions that involve a physiological or sensible dimension (*Principles* IV.190).[13]

In the *Passions of the Soul*, this relation between the sensitive function and the passionate function is indicated in several ways:

(a) While the passions can have other causes, as we will see, the "objects that move the senses" are "their most ordinary and principal causes" (Art. 51). Over the course of one's life, they are certainly the first among their causes.

(b) The function of the senses and that of the passions are characterized in very similar terms. Descartes says in Meditation Six that the function of the senses is to alert the soul to what is, or can be, useful or harmful to the body. In the same way, Descartes will say of the five "primitive passions" of love, hate, desire, joy, and sadness that

(p. 197)

> according to the institution of Nature, they all have reference to the body, and are given to the soul only insofar as it is joined with [it], so that their natural use is to incite the soul to consent and contribute to actions which can serve to preserve the body or render it more perfect in some way. (Art. 137, AT XI.430/V 92)

These passions, in so far as they relate to the body, commonly arise—as indicated in Meditation Six—from sensations of pleasure and pain:

> The soul is immediately informed of things that harm the body only by the sensation it has of pain, which produces in it, first, the passion of sadness; next, hatred of what causes the pain; and third, the desire to get rid of it. So also the soul is immediately informed of things that are useful to the body only by some sort of titillation, which, exciting joy in it, next arouses love of what one believes to be its cause, and finally the desire to acquire what can make one continue having this joy or enjoy one like it later on again. (Art. 137, AT XI.430/V 92)

(c) The soul subjected to passion feels a more or less violent change in the body to which it is united—sometimes in its members or in its internal organs, but always in the heart.[14] Associated with these changes are "external signs", such as changes of expression ("actions") in the eyes and the face, blushing, paleness, trembling, laughing, tears, wailing, and sighs.[15] All of these phenomena deserve a precise explication, which constitutes a large part of Descartes's effort in the treatise.

The most important text on this is Article 36 ("Example of the way in which the passions are excited in the soul"). This shows how, when a certain object is present to the senses, the impression that forms in the brain (on the "small gland", that is, the pineal gland) determines the animal spirits ("the most subtle parts of the blood") to move into the small canals of the nerves that go toward the heart and the other organs, in such a way that "the temperament of the blood" is changed and the body is disposed to certain movements. Thus, in the case of the appearance of a "very strange and frightful" animal, "the spirits reflected from the image thus formed on the gland" move, in certain people, from there

> in part into the nerves serving to turn the back and move the legs for running away, and in part into those which so enlarge or contract the heart's orifices, or those which so agitate the other parts from which the blood is sent to [it], that this blood, being rarefied there in an unusual manner, sends spirits to the brain suitable to maintain and strengthen the passion of fear. (AT XI.356/V 39)

(p. 198) This reaction does not imply any intervention by the soul; but "the strength of the soul" can, as much as the "temperament of the body", be counted among its determining factors, as well as the relation between the impression received from the object and a past impression that had brought about a similar reaction. This is why the same impression that incites fear in certain people incites "boldness" and the disposition to defend oneself in others. In all these cases there are two things to be noted:

> **(a)** Except perhaps in the case of admiration, which does not imply any change in the heart, the bodily emotion that produces the passion in the soul affects not merely one part of the "bodily machine", but its central systems and organs, in particular the heart, where the passions are ordinarily believed to have their seat (Arts. 31 and 33). Every passion, except for admiration, implies an "alteration" (Art. 33) of cardiac functioning and, consequently, of the "temperament of the blood" and of the spirits,

as well as, in a variable measure, of each of the other organs on which this "temperament" depends.

(b) At its central moment—the influx of the animal spirits around the heart, which modify its functioning—the bodily emotion has an inertial character: it tends to reproduce itself endlessly. In effect, a consequence of the alteration produced in the heart and in the blood is that the animal spirits entering the brain are, because of their size and agitation, such as to move in part into the nerves that serve to maintain this same agitation. This specific agitation of the animal spirits in the brain is related by Descartes to a determinate movement of the pineal gland, one that is "instituted by nature to make the soul feel this passion" (Art. 36).[16] And it is the continuous reproduction of this circuit that makes a passionate emotion so difficult to control. The initial motions in the body and the external signs of the passions, especially in the face, are just some of the mechanistic consequences of these internal modifications of the body.

3. The Passions Among Thoughts

If, in many respects, Descartes assimilates the passions to simple sense perceptions, still, the differences are impossible to miss. The two are distinguished, moreover, right from the definitional articles contained in the first part of the treatise. The passions of the soul, in the specific sense of the term, are in effect "passions"—like the soul's perceptions (p. 199) in general—and thus distinct from its actions, which are its volitions and their immediate effects. Among perceptions, they are a subset of those which "depend on the nerves" (Arts. 21, 26). But among these latter, they are distinguished both from "perceptions that we relate to external objects" and those that we relate "to our own body or to one of its parts" (Arts. 22–4). As sensorial, they make known to the soul not a local modification of the body or of the environment, but a global or central modification of the body.

However, the Cartesian definition does not put the emphasis on this point. Instead of the sensorial relation to the body and the heart, Articles 25 and 27 stress the relation of the passions to the soul itself:

> After having considered wherein the passions of the soul differ from all its other thoughts, it seems to me that they may generally be defined thus: perceptions or sensations or emotions of the soul which are referred to it in particular, and which are caused, maintained and strengthened by some movement of the spirits. (Art. 27, AT XI.349/V 33–4)

Article 25 has already said that

> The perceptions that are referred to the soul alone are those whose effects are felt as in the soul itself, and of which no proximate cause to which they may be referred is commonly known. Such are the feelings of joy, anger, and others like

> them, which are sometimes excited in us by objects that move our nerves and sometimes also by other causes. (AT XI. 349/V 33–4)

This particular or even exclusive “relation” to the soul is not really explained, and it is not easy to tell whether or not it involves a kind of illusion. As for the triple denomination “perceptions or sensations or emotions”, details are provided in Articles 28 and 29, but by itself it indicates an objective and unique complexity in the nature of the thoughts in question.

Undoubtedly, this general definition of the passions represents a problem as much as a solution, and it requires clarification in the rest of the treatise. But it can also be said at the outset that in the same way that the passions have, unlike other sense perceptions, a global internal object—namely, an interior disposition or movement of the whole body—it appears that, as perceptions, they cannot have as their object the body alone. Not only is it natural for the soul to seek out an internal or external cause for such a disposition of the body, but also this disposition or affection of the “subject” closest to it (Art. 2) cannot fail to present itself to the soul as a disposition or affection which it must embrace. The disposition of the body is meaningful to the soul only in relation to its own actual or virtual disposition. For example, a soul seized with fear will feel that the body is trembling, but the trembling itself will instantly be its own in relation to an object or a state of affairs that must at the same time be represented to it by the imagination. The “relation” of the passion to the soul, as it is presented in Articles 25 and 27, does not derive its meaning except in relation to this condition of tendentious unity; it is also precisely because the disposition of the body is ready to be extended to the soul that one (p. 200) can, on the basis of a false conception of their respective powers, make it so that this disposition of the body was, *from the start, nothing other than* the expression of a disposition of the soul.

This dynamic aspect of the passion is explicitly indicated in several articles of the second part of the treatise, devoted to defining the “primitive passions”. Thus, love is defined (Art. 79) as “an emotion of the soul, caused by the motion of the spirits, which incites it to join itself in volition to the objects that appear to be suitable to it”. Hatred is defined (Art. 79) as an emotion which “incites the soul to will to be separated from the objects that are presented to it as harmful”. Desire (Art. 86) is “an agitation of the soul, caused by the spirits, which disposes it to will for the future things it represents to be suitable to itself”. Joy (Art. 91) is “a delightful emotion of the soul, wherein consists the enjoyment it has of the good which the impressions of the brain represent to it as its own”, while sadness (Art. 92) is “an unpleasant languor, wherein consists the distress which the soul receives from the evil or defect which the impressions of the brain represent to it as belonging to it”.

The same articles distinguish these passions from certain emotions (of love, joy, or sadness) qualified as “intellectual” and that do not have a physiological dimension. This distinction has often been misunderstood. The emotions in question do not have any privilege in terms of rationality. Unlike the Stoic *eupatheiai*, which Descartes alluded to in *Principles of Philosophy* IV.190,[17] these “intellectual” emotions are just the same acts to

which the soul is incited by the passions—for example, in love, “to join oneself in volition” to the object—in so far as the soul experiences them, or they are (as in *Principles* IV.190) the same thoughts which, once translated by the brain, trigger the emotion of the body and thus the passion. But “ordinarily”, these two kinds of emotion follow each other and “occur together”.[18]

In any case, it would be vain to try to isolate the affect, or pure emotion, from thoughts whose representational content is more determinate.[19] In the strictest sense, the passion of the soul is only the effect produced immediately in the soul, “according to the institution of nature”, by a certain motion of the pineal gland, inclined toward a certain side of the brain by a certain motion of the animal spirits. But in a broader and more typical sense, the passion of the soul includes in itself a certain internal sensation, an imagination of the object, and a kind of attitude with respect to this object. The complex and variable causation of the passion, which sometimes is excited by a sense impression “without the soul contributing anything”, and sometimes originates in a thought bearing an appreciation of a certain object or state of affairs (Arts. 53, 58, 61, 93, 102, 103, 106, etc.), cannot fail to find expression in this variety of aspects and moments.

(p. 201) 4. Descartes on “The Usage of the Passions”

The passions are not the only species of thoughts that have a dynamic dimension in the soul. This is also the case with sensations of pleasure and pain, hunger, thirst, and other “natural appetites”. However, the passions are, without doubt, the only ones that cannot be approached phenomenologically without this dimension. Thus, as well, the insistent problem of their “usage”, that is, their objective utility and, at the same time, the control that can be exercised over them.

There is, in Descartes’s treatise, a recurring effort to define this “usage” of the passions, especially in articles 40, 52, and 137. The accent in these texts is on the functional relation of each passion to a certain physical type of action, which is the proper reaction to a given circumstance, a reaction to which the soul is incited by the passion itself to consent or (where appropriate) do its part.

> The principal effect of all the passions in men is that they incite and dispose their soul to will the things for which they prepare their body. (Art. 40, AT XI.359/V 40)

> The use of all the passions consists in this alone: they dispose the soul to will the things nature tells us are useful and to persist in this volition. (Art. 52, AT XI.372/V 51–2)

And then there is this more complete statement, already cited:

> According to the institution of nature, [the primitive passions of love, hatred, desire, joy, and sadness], all have reference to the body, and are given to the soul only insofar as it is joined with [it], so that their natural use is to incite the soul to consent and contribute to actions which can serve to preserve the body or render it more perfect in some way. (Art. 137, AT XI.430/V 92)

This is how it is in the example developed in Articles 36 to 39, where the impression of a "strange and frightening" object puts the body in a certain condition corresponding to the actions of flight or defense, right at the same time that it warns the soul of the menace to which it must react. This requires some comments:

(1) What could be called, referring to the "three degrees of sensation" invoked in the Sixth Replies,[20] the "first degree" (purely physiological) of the passions (bodily emotion) is common to humans and animals, which "all direct their lives entirely by bodily movements like those which usually follow them [*i.e. the passions*] in us, and to which they incite our soul to consent" (Art. 138, AT XI.431/V 93). The communication of the emotion from the body to the soul must thus be understood, (p. 202) according to the wording of Article 40, as a supplementary "effect"—rather than as the initial finality—of these internal motions, which are the normal functions of the "machine" of an organized body.
(2) Descartes never came up with a discussion of the "natural institution" of the passions comparable to the one he offers in the Sixth Meditation for sense perception. Still, one of his principal concerns in the *Passions of the Soul* is to show that these passions are "by their nature good" (Art. 211) and useful to the composite of soul and body. This utility is, first of all, connected with the soul's need to be warned by the body of things that can be useful to the conservation of this body (and thus of its union with the body). In this regard, the predetermining character of the passions (*prévenant*, in Malebranche's wording) with regard to the will is completely justified and indispensable. This is indicated, as well, in Article 74: "The utility of all the passions consists only in their strengthening thoughts which it is good that the soul preserve and which could otherwise easily be effaced from it" (AT XI.381/V 59).
(3) The body's reaction to a given circumstance or impression can vary according to its disposition at the moment; but it remains essentially a habitual reaction, determined by a certain "bodily memory" that constitutes a part of what Descartes calls the "disposition of the brain". However, the discernment (or relevance) of this bodily memory with regard to present circumstance must have its limits. This is why, even with respect to circumstances that are of essential interest to the body, it is up to the soul to use reason to evaluate this relevance (Art. 138); and generally it has the means to do so: the passion constitutes in the body only the beginning of the reaction, and it *incites* the soul to share this reaction without *determining* it to do so.
(4) The problem of the utility of the passions appears in a more acute form in the case where the passion is excited not by a sense impression, relative to some object of interest to the body, but by a simple imagination or by a thought that the soul forms on its own. First, why do our passions extend beyond their "natural usage", which has regard to the body, toward objects that are not exactly of direct interest to

> the body but that regard social life or even the search for truth? It is not difficult to formulate the rule governing this extension: when a bodily emotion has excited in the soul a certain disposition or movement with respect to a certain object, every similar relation to an object, manifesting itself either in or through the soul, tends to reactivate this emotion in the body.[21] But this extension of the domain of the passions is—as it will later be for Spinoza—of a completely mechanical nature.

(p. 203) In a number of cases, the passion ends up "doubling", in a way, an initial thought that the soul has had about some object. To what end? The answer must be: the passion adds to the initial thought a kind of consistency and duration that it did not previously have. It *realizes* or begins to realize a certain relation to this object that the soul had only anticipated. One ought even to speak of a certain law of the union of soul and body which decrees that every thought susceptible of a cerebral translation (imaginative, sensitive, motive) receives, as much as possible (taking into account its nature and the disposition of the soul/body compound), this translation with which it acquires a maximum weight. As for knowing whether this is good, the response (according to Art. 74) must be that it is very good to the extent that these thoughts are good (well founded), and bad to the extent that they are poorly founded. But it is up to us to make our thoughts good.

5. The Passions Put in Order

Another part of Descartes's effort in the *Passions of the Soul* concerns the ordering of the passions, including their relations and differences. This is where his competition with other authors is most manifest. Here, too, is where the methodical dimension of the work is most apparent, particularly with the distinction made between the six "simple and primitive passions" and the particular passions that are composed of them or are "species" of them (Arts. 69 and 149).

Just as elsewhere in Descartes's corpus, the rules applied here are not very explicit. From the fact that we have passions only with respect to objects "that matter to us", Article 52 concludes, for example, that "in order to enumerate them, one needs only to investigate, in order, in how many different ways that are important to us our senses can be moved by their object" (AT XI.372/V 52). But if this principle can serve to distinguish between the "new", the "good", and the bad" as elementary characteristics of the objects of passion, it is not at all sufficient to allow for a complete enumeration of the passions. Even when the passions of esteem and contempt are related to objects considered with regard to their *greatness* and *smallness* (Arts. 54 and 150), there is no question here of understanding these qualities in a properly physical sense.

The Cartesian classification, such as it appears at the beginning of the second part of the treatise, enumerates forty passions. Despite the irregular physiognomy, it is clear enough in its structure. The six passions called "simple and primitive" correspond, on the side of objects, to a small number of elementary, gradually introduced characteristics: the *new* (or "rare and extraordinary") for *admiration*; and the *good* and the *bad* "with respect to us" for the five others, with these latter two values considered either independent of time

(for love and hate), or related to the future (for desire, which cannot be formally distinguished from aversion, which is only its negative side), or to the present (for joy and sadness). All the other ("particular") passions are attached to more determinate objects, with their excitation being a consequent response to a larger number of conditions.

(p. 204) Besides this relation to an object, the "simple and primitive" character of these six passions is understood on two other planes:

> **(1)** They correspond to specific "motions of the blood". Descartes admits to having had difficulty in distinguishing these one from the other because of the complexities of affective life,[22] but they are nonetheless defined in Articles 101 through 106 of the treatise.
> **(2)** They were "our soul's first passions, when it was originally joined to the body" (Art. 107), and for four of these (love, hate, joy, and sadness), ever since prenatal life, in relation to the greater or lesser nourishment of the heat of the heart.[23] And if admiration (in so far as it is distinct from simple surprise) and desire already require a minimal empirical conscience for being excited in the soul, this is even more true of particular passions such as esteem and contempt, hope and fear, irresolution, courage, envy, pity, self-satisfaction, indignation, or anger.

Scholastic classifications distinguished between six passions of the "concupiscible" (love, hate, desire, aversion, joy, sadness), teleologically ordered, and five passions of the "irascible" (hope, despair, audacity, fear, anger), equally ordered. Descartes, for his part, does not accord any privilege to the "faculty … of desire" nor to that of "getting angry" (Art. 68). As to the question of knowing which of our primitive passions could be said to be the principal one (as love is in the Augustinian tradition), it must be said that all have a claim to this title, for different reasons: admiration, because to a certain degree it precedes all the others ("If the object presented has nothing in it that surprises us, we are not in the least moved by it" [Art. 53]); love and hate, because they organize all our relations to external things, and even our relation to ourselves; desire, because all our actions proceed from it; and joy and sadness, as absolute states which cover all the enjoyments and "inconveniences" that the soul can experience (Arts. 91 and 92). There is thus, for Descartes, no single passion to which all the others relate. His classification is resolutely exempt from psychological or teleological overdetermination.

On the other hand, it is highly significant that admiration is mentioned first, and is presented as "the first of all the passions" (Art. 53); and correlatively, that esteem and contempt, which are species of admiration, are placed at the head of the series of particular passions, which are the subject of Part Three of the treatise. "First among all the passions", admiration directly extends the domain of human affectivity beyond physical goods and evils; first among the particular passions, esteem and contempt directly indicate the social dimension of their objects—the greatness and smallness to which these two passions are related are to be understood not in a physical sense, but as a matter of power, of *value* or *merit* (Arts. 150–1).

(p. 205) In this way, it cannot be the case that the primitive passions and the particular passions constitute two distinct domains or realms of affectivity. It is true that the former are more often related to the body than the latter, and that the part played by sensory impressions in the excitation of the latter is less than that played by the imagination. But precisely to the degree to which they do not have a direct physical object, the passions of love, hate, desire, etc. are integrated with the particular passions whose objects they share. Thus, for example, the most useful distinctions that can be made within love hold with respect to "the esteem that one has toward what one loves in comparison to oneself" (Art. 83).

This provides the key to mastering the passions, which must constitute—without any concession to the rhetoric of "moral philosophers"—the horizon of the Cartesian project. In all matters that are not strictly related to the body, our passions are linked to judgments concerning the value of things and concerning what belongs to us and is properly ours, in contrast with what is proper to and belongs to other beings, above all those that are similar to us. In this way, the Stoics were right to stress that how we allocate our esteem and our contempt determines, to a large extent, our affective life, while the value or importance granted to things that relate to the body matter a lot for the violence or moderation of the passions connected with them. Just as the body has its food, to which a certain number of passions are attached, and the mind considered by itself has its own, which are cognitions,[24] the *ego*, which is neither body nor pure mind, has its own, which consist—and on this question Descartes is not as far from Hobbes and Spinoza as is often assumed—in feelings of power or perfection. But while the good of the body and the good of the mind, considered separately, are strictly determined in the nature of things, that of the *ego*—considered as both free person and individual inscribed in society—is much less so. There is no indication that the ancients, and the Christian authors who followed them, were misled in seeing it as the object of a great choice.

Thus, judging well what is worth seeking or praising is not only the essential act of morality, but also the principle of any real mastery over the passions. This is what makes for "the strongest souls" who "conduct the actions of [their] lives" by following "firm and decisive judgments concerning the knowledge of good and evil" (Art. 48). But most human beings also have "decisive judgments, according to which they regulate a part of their actions", and "though these judgments are often false, and even founded on some passions by which the will has previously allowed itself to be conquered or seduced", they help them resist certain other passions (Art. 49, AT XI.368/V 47).

This latter set of views might seem to mark a complete reversal of the initial perspective that sees the passions as effects of an action of the body (Art. 2) and that stresses that "among all the thoughts [the soul] can have, there are no others which agitate it and shake it so strongly" (Art. 28). In fact, if the value judgments in question were so dissociated from "motions of the blood and the spirits" (Arts. 96, 112, 211), this control that the soul has over the passions would be incomprehensible. But, on the contrary, (p. 206) between these judgments and certain internal motions of the body there must be an ex-

tremely close association, whereby only certain thoughts can oppose, weaken, and extinguish the motions of certain passions (Art. 47).

This is especially the case for self-esteem, which constitutes, on the moral plane, the most decisive disposition, according to whether it is well- or ill-founded. Pride, which arises from excessive or ill-founded self-esteem (Art. 157), and generosity, a reasonable self-esteem that is connected exclusively to the "good use of free will" (Art. 153) and for this reason is the same as "virtuous humility" (Art. 155), are not only "habits" or dispositions of the mind—the one, vicious; the other, virtuous—but also passions linked to admiration. Both imply a "motion [of the spirits] composed of those of wonder, joy and love, both that which we have for ourselves and that which we have for the thing making us esteem ourselves" (Art. 160, AT XI.451/V 107). But while the motions of the spirits in a proud person are unequal and violent—because proud people attribute to themselves whatever happens to them, and "a thing which has made them proud is often succeeded by another which humbles them"—the motions of the spirits of generous people are "firm, constant and always quite similar to one another", and they can resist the motions of other passions in so far as "nothing else can alter" their internal disposition (Art. 160, AT XI.452/V 108).

Ought we to conclude that there is an intrinsic unity between virtue (or vice) and the "temperament of the body"? This would be to simplify things. On the one hand, as the personal case of Princess Elisabeth shows, an indisputable generosity, "the key to all the other virtues" (Art. 161), can be accompanied by a great physical emotivity and fragility. On the other hand, the mind of a generous person can certainly feel itself generally in harmony with its body, but it can also detach itself from the body and discover in the consideration of its own virtue in any set of circumstances a "purely intellectual joy", an "emotion internal to the soul" which is distinct from the present passion and can in some way neutralize it (Arts. 147–8). These two conditions are parts of one and the same system. As the Stoics well understood, it is because the passion never completely conquers the soul that, provided the soul recognizes its merit, there always remains a space of internal liberty and a possibility of joy. But conversely there is no possibility of the body completely obeying the soul, and in Elisabeth's case, what is essential is that the soul maintains the disposition of its thoughts and its intentions.[25]

It remains the case that the passions are "almost all good, and so useful in this life that our soul would have no reason to wish to remain joined to its body for even one minute if it could not feel them",[26] and that "the men they can move the most are capable of tasting the most sweetness in this life" (Art. 212). Clearly, a philosopher is not permitted to seek out God's purposes in uniting our souls to bodies; but it is certain that this "substantial union" of mind and body can be a source of joy. Herein lies the ultimate objective of the Cartesian argument, whose final words recall the last pages of Montaigne's (p. 207) *Essays* and stand out in their time for their persuasive serenity. The key to universal enjoyment is found in the clarity of one's thoughts, and Descartes's conviction is that with this study of the passions of the soul, these thoughts cannot fail to achieve clarity.

Translated by Steven Nadler

References

Alanen, Lilli (2003), *Descartes's Concept of Mind*. Cambridge, MA: Harvard University Press.

Allen, Christopher (1998), "Painting the Passions: The *Passions de l'Âme* as a Basis for Pictorial Expression", in Stephen Gaukroger (ed.), *The Soft Underbelly of Reason: The Passions in the Seventeenth Century*. London and New York: Routledge, 79–111.

Beyssade, Jean-Marie (1983), "Réflexe ou admiration. Sur les mécanismes sensori-moteurs selon Descartes", in Jean-Luc Marion and Jean Deprun (eds.), *La Passion de la raison: Hommage à Ferdinand Alquié*. Paris: Presses Universitaires de France, 113–30.

Beyssade, Jean-Marie (2003), "On Sensory-Motor Mechanisms in Descartes: Wonder versus Reflex", in Byron Williston and André Gombay (eds.), *Passion and Virtue in Descartes*. Amherst, NY: Humanity Books, 129–52.

Bos, Erik-Jan (2017), "Descartes and Regius on the Pineal Gland and Animal Spirits, and a Letter of Regius on the True Seat of the Soul", in Stephen Gaukroger and Catherine Wilson (eds.), *Descartes and Cartesianism: Essays in Honour of Desmond Clarke*. Oxford: Oxford University Press, 95–111.

Brown, Deborah (2006), *Descartes and the Passionate Mind*. Cambridge: Cambridge University Press.

Des Chene, Dennis (2012), "Using the Passions", in Martin Pickavé and Lisa Shapiro (eds.), *Emotions and Cognitive Life in Medieval and Early Modern Philosophy*. Oxford: Oxford University Press, 176–92.

Coeffeteau, Nicolas (1620), *Tableau des passions humaines*. Paris: Cramoisy.

Cureau de la Chambre, M. (1640), *Les Caractères des passions*, vol. 1. Paris: Rocolet.

Gaukroger, Stephen, ed. (1998), *The Soft Underbelly of Reason: The Passions in the Seventeenth Century*. London and New York: Routledge.

Greenberg, Sean (2007), "Descartes on the Passions: Function, Representation, and Motivation", *Nous* 41: 714–734.

Hatfield, Gary (2007), "Did Descartes Have a Jamesian Theory of the Emotions?", *Philosophical Psychology* 20: 413–40.

James, Susan (1997), *Passion and Action: The Emotions in Seventeenth-Century Philosophy*. Oxford: Oxford University Press.

James, William (1890), *Principles of Psychology*, 2 vols. New York: Dover. [Reprinted 1950.]

Kambouchner, Denis (1995), *L'Homme des passions: Commentaires sur Descartes*, 2 vols. Paris: Albin Michel.

Kambouchner, Denis (1988), "La troisième intériorité. L'institution naturelle des passions et la notion cartésienne du 'sens intérieur' ", *Revue philosophique de la France et de l'étranger*, 178 (4): 457–84.

Kambouchner, Denis (2008), *Descartes et la philosophie morale*. Paris: Hermann.

Kambouchner, Denis (2014), "Le cas Élisabeth: générosité et mélancolie", in Delphine Kolesnik-Antoine and Marie-Frédérique Pellegrin (eds.), *Élisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin, 139–53.

(p. 208) Levi, Anthony (1964), *French Moralists: The Theories of Passions 1584–1649*. Oxford: Clarendon Press.

Shapiro, Lisa (2012), "How We Experience the World: Passionate Perception in Descartes and Spinoza", in Martin Pickavé and Lisa Shapiro (eds.), *Emotions and Cognitive Life in Medieval and Early Modern Philosophy*. Oxford: Oxford University Press, 193–216.

Talon-Hugon, Carole (2002), *Les Passions rêvées par la raison: Essai sur la théorie des passions de Descartes et de quelques-uns de ses contemporains*. Paris: Vrin.

Notes:

([1]) Letter to Clerselier, 23 April 1649, AT V.354/CSMK 376.

([2]) *Les Passions de l'Âme*. Par René Des Cartes. À Paris, chez Henry le Gras/À Amsterdam, chez Louys Elzevier. MDCXLIX.

([3]) Letter to Elisabeth, May 1646, AT IV.407/CSMK 285.

([4]) See *Abrégé de musique*, AT X.89, 90, 95; *Cogitationes Privatae*, AT X.217; *L'Homme*, AT XI.166–7, 176, 195.

([5]) On the word 'usage', see Des Chene 2012: 178–9.

([6]) See Levi 1964; Gaukroger 1998; Brown 2006; Talon-Hugon 2002.

([7]) *Principles of Philosophy*, Letter-Preface, AT IXB.15/CSM 1.186.

([8]) See S. James 1997: 47–64.

([9]) Cureau de la Chambre 1640 (unpaginated).

([10]) This definition, which is found in Coëffeteau 1620, recalls that of Eustache de Saint-Paul (*Summa Philosophiae*, 1609), which was itself completely traditional.

([11]) “The more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike and tremble, because we are sorry, angry, or fearful, as the case may be” (W. James 1890: II.450).

([12]) On the relationship between the Cartesian theory of the emotions and the Jamesian theory, see Hatfield 2007.

([13]) On this, see Kambouchner 1988, 2008: 77–114.

([14]) This physiological dimension of the passions had long been noted and described ever since Plato (*Phaedrus*), Aristotle (*On the Soul* I.I.403–6), and the Stoics (Seneca, *On Anger*). It is especially present in treatises from the first half of the seventeenth century, notably Cureau de la Chambre 1640.

([15]) See Arts. 112–35. The Cartesian study of the external signs of the passions will directly inspire the famous conference of the painter and sculptor Charles Le Brun at the Académie royale de peinture on *L’expression générale et particulière* (1668), and, through this, Darwin’s work *The Expression of the Emotions in Man and Animals* (1872). See Allen 1998: 79–111.

([16]) Despite the ambiguity of certain expressions, exacerbated by the Latin translation of 1650, it is important to remember that the animal spirits move the gland not by striking it, like a racquet, but in departing from it as from their “abundant source” (*L’Homme*, AT XI.130) and thence entering into determinate pores that are open on the interior superficies of the brain; see Beyssade 1983, 2003; Kambouchner 1995: I.134–8 ; Bos 2017.

([17]) “That intellectual joy which occurs without any bodily disturbance and which, for this reason, the Stoics allowed that the man of wisdom could experience, although they required him to be free of all passion” (AT VIII.317/CSM I.281).

([18]) *Passions of the Soul*, Arts. 91 and 92; Letter to Chanut, 1 February 1647, AT IV.603/CSMK 307.

([19]) On this issue, see especially Alanen 2003; Greenberg 2007; Shapiro 2012.

([20]) AT VII.436–9/CSM II.294–6.

([21]) See Articles 50, 107, and 136; and the Letter to Chanut, 1 February 1647, AT IV.604/CSMK 307. In Article 136, Descartes presents the connection between the soul and the body according to which “when we have once joined some bodily action with some thought, one of the two is never present to us afterwards without the other also being present to us” as “the principle on which everything [he has] written about [the causes and effects of the passions] is based” (AT XI.428/V 91).

([22]) “It is true that I found difficulty in working out the movements [of the blood] peculiar to each passion” (Letter to Elisabeth, May 1646, AT IV.408/CSMK 286).

([23]) *Passions of the Soul*, Arts. 107 to 111; Letter to Chanut, 1 February 1647, AT IV.604–5/CSMK 307–8.

([24]) See the Letter to Chanut, 1 February 1647, AT IV.602/CSMK 306.

([25]) See Kambouchner 2014.

([26]) Letter to Chanut, 1 November 1646, AT IV.538/CSMK 300.

Denis Kambouchner

Department of Philosophy, Université Paris 1 Panthéon-Sorbonne

Descartes’s Philosophical Theology

Igor Agostini

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Abstract and Keywords

In this chapter I argue the following thesis: 1) Descartes’s *Meditations* never formulate the problem of God’s existence as it is required by the precepts of order; in particular, the only problem of existence posed by Descartes after the classification of thoughts in the Third Meditation does not concern God directly, but generally *aliqua res*. 2) Though Descartes qualifies the two proofs of the Third Meditation as a posteriori, they cannot be considered as homologous in their structure to the traditional a posteriori proofs: they both—and the second in particular—contain components that are truly a priori. 3) The proof of the Fifth Meditation, as it starts from the true definition of God and God’s essence, does not constitute a *quoadnos* version of the a priori demonstration belonging to mathematics, but is, in a strict sense, a *potissima* demonstration that is at least as evident as those of mathematics.

Keywords: existence of God, idea of God, clarity, distinctness, a priori, a posteriori, sui causa

(p. 209) 1. The Problem of God’s Existence

DESCARTES formulated three proofs of God’s existence: for the first time in the *Discourse on Method* (AT VI.33–6); then in the *Meditations on First Philosophy: In Which the Existence of God and the Immortality of the Soul are Demonstrated* (AT VII.40–52; 65–9) and the Second Replies (AT VII.166–9); and, finally, in the *Principles of Philosophy* (AT VIIIA.10–13).[1]

Descartes himself speaks of demonstrations of *God*’s existence. Moreover, in the book which he repeatedly qualified as “ma métaphysique”, the *Meditations*, God’s existence appears in the title of two of the meditations: the Third (*De Deo, quod existat*, AT VII.34), which contains two proofs (AT VII.40–9; 49–51), and the Fifth (*iterum de Deo, quod existat*, AT VII.63), which contains one proof (AT VII 65–8).

As concerns the *Meditations*, however, bear in mind not only that Mersenne chose the title, but also Descartes's important clarification: "I deal not just with God and the soul, but in general with all the first things that can be discovered by philosophizing in an orderly way" (AT III.239/CSMK 158).[2] Therefore, God does not enter First Philosophy except insofar as he is subject to Descartes's precepts of order. Accordingly, the *Meditations* explicitly postpones the question of God's existence to the extent that it is not required by considerations of order. In claiming, in the Third Meditation, that it is necessary to know that God exists in order to exclude the hypothesis of the God (p. 210) deceiver, Descartes adds that this inquiry into God's existence will be conducted only "as soon as the opportunity [*occasio*] arises" (AT VII.36/CSM II.25). Thus, considerations of order dictate first the classification of thoughts into definite kinds, according to whether, properly speaking, truth or error can be found in them (AT VII.36–7).

Ever since Descartes's time, this last passage has generally been interpreted to mean that the classification of thoughts is a preliminary step in addressing the problem of God's existence (and veracity), a problem that is only provisionally set aside and that will be taken up soon enough.[3] However, not only does Descartes claim that this problem will be posed only "as soon as the opportunity [*occasio*] arises" (AT VII.36), but it turns out that this opportunity in fact arises later than is commonly assumed, that is, only *after* achieving what has ordinarily been considered to be the first proof of God's existence (AT VII.40–9).

The only problem of existence posed by Descartes after the classification of thoughts does not concern God directly, but generally *aliqua res*: "some of the things of which I possess ideas" (AT VII.40/CSM.II.27); "some other thing" (AT VII.42/CSM.II.29); "another thing beyond myself" (AT.VII.42; my translation). Although we are accustomed to considering this to be Descartes's first demonstration of God's existence, it is not a proof of God's existence, but rather the proof of a thing (*res*)—whose nature is not yet determinated (*aliqua*)—which is different from myself. Certainly, this thing will be later identified with God, but only because of the exclusion of other possibilities ("So there remains only the idea of God": AT VII.45/CSM II.31).

In Descartes's so-called first demonstration of God's existence, the proposition "God exists" is not an answer to the question, "Does God exist?" Accordingly, it is only after discovering that this *aliqua res*, which is different from myself, is God, that Descartes explicitly formulates the question "Does God exist?" Still, he never formulates this problem as if it is required by the precepts of order. On the contrary, he introduces it as a kind of contingent opportunity, both in the second proof of the Third Meditation ("it is pleasing to enquire": AT VII.47; my translation) and in the proof of the Fifth Meditation ("a possible basis for another argument to prove the existence of God": AT VII.65/CSM II.45).

2. Summary of the Proofs

Descartes qualifies the two proofs of the Third Meditation, in conformity with the traditional language, as a posteriori (AT VII.167) or—what he considers equivalent[4]—*per effectus* (AT VII.120), *ex effectu* (AT V.153), *ab effectu* (AT V.153). The proof of the Fifth Meditation is qualified as "a priori" (AT V.153) (which Descartes considers as (p. 211) equivalent to *per causas*)[5] or *per essentiam sive naturam* (AT VII.120). They can be briefly summarized as follows.

1. The natural light shows that there must be at least as much reality in the efficient and total cause as in its effect (AT VII.40). This is not only evidently true of those effects that possess actual or formal reality, but also of the ideas in which we consider what is termed "objective reality" (AT VII.41). Now, I have the idea of a supreme God that is of an eternal, infinite, immutable, omniscient, omnipotent substance, Creator of all things which are outside Himself, and this idea has more objective reality than the ideas by which finite substances are represented (AT VII.40, 45). However, I myself cannot be the cause of the idea of God (and this idea only), for though the idea of substance is in me because I am substance, nevertheless, since I am finite, I would not have the idea of an infinite substance if it had not proceeded from some substance which really is infinite. Therefore, an infinite substance, that is God, must exist (AT VII.45).

2. I am a *res cogitans* having the idea of God. Now, my being cannot come from myself, otherwise I would neither doubt nor want nor lack anything at all, because I would have given myself all the perfections of which I have the idea and I thus would myself be God. Consequently, I depend on some being different from myself (AT VII. 48–9). However, I cannot be produced by causes less perfect than God, such as my parents. Indeed, given that there must be at least as much reality in the cause as in the effect, and I am a thinking thing, my cause, too, will be a thinking thing and must possess the idea of all the perfections which I attribute to God. Consequently, I shall again enquire whether this cause derives its origin from itself or from some other thing. For if from itself, it follows that this cause must itself be God: since it comes from itself, it must also have the power of actually possessing all the perfections of which it has the idea, that is, all those I conceive as existing in God. If it derives its existence from some cause other than itself, I shall again ask whether this second cause comes from itself or from another. Since it is impossible for this inquiry to go on to infinity, a first cause must exist which comes from itself and, consequently, has the power to possess all the perfections of which it has an idea, and this is God (AT VII.50–1).

3. I do not know less clearly and distinctly that an eternal existence is contained in God's nature (*natura*) than I know that some figure or number truly pertains to the nature of any figure or number (AT VII.65). Indeed, existence can no more be separated from God's essence (*essentia*) than can its having three angles equal to two right angles be separated from the essence of a rectilinear triangle, or the idea of a mountain from the idea of a valley. As such, there is no less repugnance to our con-

ceiving of a God (that is, a Being supremely perfect) to whom existence is lacking (that is, to whom a certain perfection is lacking) than to conceive of a mountain which has no valley (AT VII.66).

(p. 212) 3. The Clear and Distinct Idea of God

After achieving his first proof in the Third Meditation, Descartes considers two objections: either 1) the idea of God is formed through the negation of the finite (*per negationem finiti*) (AT VII.45), or 2) the idea of God is materially false (*materialiter falsa*) (AT VII.46).[6]

Descartes replies to these objections as follows. First, the idea of God is a "true idea [*vera idea*]" (AT VII.45/CSM II.31) because I manifestly understand more reality in an infinite substance than in a finite one, and, consequently, my perception of the infinite (God) is in some way prior to my perception of the finite (myself). Second, my idea of God is an idea which is true (*idea vera*), actually "true in the highest degree [*maxime vera*]"—indeed, it is utterly clear and distinct (*maxime clare et distincta*) and contains more objective reality in itself than any other idea (*quam ulla alia*), because "whatever I clearly and distinctly perceive as being real and true, and implying any perfection, is wholly contained in it" (AT VII.46/CSM II.32).[7]

However, these are not merely answers to the two objections. They constitute the proof of the premise on which the demonstration of God's existence is grounded: I have an idea that "represent[s] God" (AT VII.43/CSM II.29). But in order to defend the second point, another difficulty has to be dissipated, namely that God cannot be comprehended and that there are in him countless things that perhaps (*forte*) I cannot even touch (*attingere*) by my thought. Descartes's answer is that it is the nature (*ratio*) of the infinite not to be comprehended by a finite being like myself (AT VII.46). This means that incomprehensibility is part of the content of God's intelligibility.[8]

Descartes repeats here a doctrine that he had already formulated in 1630 in his theory of the creation of the eternal truths,[9] but that is now used in order to establish the clarity and distinctness of the idea of God: "It is enough that I understand and that I judge that all things which I clearly perceive and know to imply some perfections, and perhaps [*forte*] countless others of which I am ignorant, are in God formally or eminently. This is enough to make the idea that I have of God the truest and most clear and distinct of all my ideas" (AT VII.46/CSM II.32, modified).

The thesis of the clarity and distinctness of the idea of God will raise many concerns among the objectors. To Caterus, who evokes against Descartes the old adage "*the infinite qua infinite is unknown*" (AT VII.96/CSM II.69), Descartes replies that he has tried to forestall (*prævenire*) this objection, but that it is worth answering at some length (AT VII. 112). The debate between Descartes and Caterus begins an extended discussion (p. 213)

with the objectors in which Descartes’s replies will not always be coherent with either the Third Meditation or with one another.[10]

Descartes’s first argument against Caterus is grounded on the distinction between *comprehendere* and *intelligere*: the infinite *qua* infinite can in no way be comprehended, but it can be understood (AT VII.112). However, this argument, which will repeatedly occur in the *Replies* (AT VII.140, 194), was not the one used in the Third Meditation to “forestall” the difficulty that Caterus raises.[11] In the Third Meditation—and this is coherent with what Descartes claims in 1630 and asserts in other texts of the *Replies* (notably in AT VII. 368)—incomprehensibility, far from undermining our knowledge of the infinite, confirms it, insofar as it is part of the very content of the intelligibility of God.[12] Moreover, the only restrictions affecting our knowledge of infinity come from its intelligibility itself: there are in God, perhaps (*forte*), countless things that I cannot even touch (*attingere*) by my thought and of which I am ignorant (AT VII.46).

This leaves open the possibility of an imperfect intelligibility of God. It also explains why, in spite of a deeply rooted interpretation,[13] Descartes never asserts in the Third Meditation that the objective reality of the idea of God is infinite, but only that it contains more reality (*plus realitatis*: AT VII.40, 45, 46) than the ideas of finite things.[14] This is not a merely textual fact, since all the steps of Descartes’s demonstration pivot on the notion of *plus realitatis*, without ever requiring an infinite objective reality or description of the idea of an infinite substance (AT VII.40; *vera idea* [AT VII.45]; *idea vera* [AT VII.46]).

There is an ambiguity here, however, for what possesses more than a finite reality would seem necessarily to be infinite, since there is no intermediate between infinite and finite. But Descartes has made a deliberate choice: by not asserting that the idea of God has infinite objective reality, he avoids claiming an adequate knowledge of God and thus can forestall the objection based on the unknowability of the infinite that will be posed later by Caterus.

Under the pressure of the objectors, however, Descartes will be obliged to resolve the ambiguity of the Third Meditation. Nevertheless, the arguments he offers in the Replies are not always coherent with one another or with the Third Meditation. Descartes, indeed, seems to swing between two extreme positions.

In some texts, he attenuates the doctrine of the Third Meditation. With Caterus, he claims that our knowledge of God is finite (*finita cognitio*, AT VII.114), and the idea of God is said to contain only “something real [*aliquid reale*]” (AT VII.114/CSM II.82), while in the Third Meditation it was said to contain more objective reality than any (p. 214) other idea (AT VII.46). With both Caterus and Gassendi, Descartes indulges in negative formulations of the doctrine of the intellection of infinite. He claims that to understand clearly that something is infinite is “clearly and distinctly to understand that something is such that no limitations can be found in it” (AT VII.112/CSM II.81) and that “it suffices for the possession of a true and complete idea of the infinite in its entirety if we understand that it is a thing which is bounded by no limits” (AT VII 368/CSM II.254); but this stands in contrast with the Third Meditation (AT VII.45–6) and another passage of the Fifth Replies (AT

VII.365).[15] Meanwhile, when Hyperaspistes accuses him of contradicting himself (AT III. 403), Descartes returns to the formulation of the Third Meditation (AT III.427). In the Second Replies he affirms that there are only a "few [*pauca*]" (AT VII.152/CSM II.108) things that we perceive to be in God, and he seems to reduce the clarity and distinctness of the idea of God to the knowledge of His existence (AT VII.140,152). Finally, with Gassendi, he asserts that "we do not know everything which is in God" (AT VII.368/CSM II.254), in contrast with the *forte* (AT VII.46) of the Third Meditation. By contrast, in other texts—in particular in the Fifth Replies—Descartes radicalizes his doctrine, going so far as to assert that "God is understood as infinite" (AT VII.365/CSM II.252).

Because of such hesitations, Descartes draws contrasting criticisms. It will be objected, on the one hand, that if our knowledge of God is finite, it is not clear and distinct.[16] On the other hand, if we understand the infinity of God, we are not allowed to claim that our knowledge of God is proportionate, as Descartes does, "to the small capacity [*modulus*] of our minds" (AT VII.114/CSM II.82).[17]

The reasons for his oscillations can be traced to the difficulty of balancing two opposing demands.[18] On the one hand, he must not claim an adequate knowledge of God; on the other hand, he must not abandon the foundation of the demonstration of God's existence, which holds that the idea of God contains *more* reality than the idea of finite things.

One way or another, Descartes will never cease to reiterate the core of his doctrine: the idea of God "contains the essence [*quid sit*] of God" (AT VII.107/CSM II.78), that is, his "true definition [*vera definitio*]" (AT III.383/CSMK 184). The stakes are all the higher because the point of departure for all three proofs of God's existence contains, as a necessary condition, the idea of God. This will become clear through an analysis of the structure of these proofs.

4. The Structure of the Proofs

The first and second proofs are qualified as "a posteriori" since they are both grounded on the same principle, namely that "there must at least be as much reality in the efficient and total cause as in its effect" (AT VII.40/CSM II.28; see also AT VII.49). Despite this, (p. 215) however, their structure cannot be considered as homologous to the traditional a posteriori proofs. Commentators have already stressed this point,[19] but I would like to develop it a little bit more.

4.1. The First A Posteriori Proof and the Idea of God

The most distinctive feature of the first Cartesian proof in relation to the traditional demonstrations consists in the fact that the effect from which it starts is not some external reality but an idea, and, more precisely, that idea's objective reality.

It is Descartes himself who draws attention to this point (AT VII.41), on which the first of Caterus's objections will focus (AT VII.92). However, for Descartes, this was the only

choice, as no formal (external) reality is available. We do not know that the sky exists just because it exists, since this vision (*visio*) does not affect the mind except insofar as it is an idea (AT VII.165); I am not as certain of the existence of the sky as I am of my own existence (AT IV.112).

And the fact that the particular objective reality which allows Descartes to demonstrate God’s existence is God’s objective reality was the only option as well; as we have seen, there is no other objective reality which *cannot* be caused by Descartes himself.

However, it is necessary to start from the idea of God for yet another reason. In the *Principles*, Descartes states that this approach has an “advantage [*privilegium*]” (AT VIIIA.13, CSM I.300), namely that we can both demonstrate God’s existence, and, at the same time, come to know his nature. However, this is much more than an advantage: it is a necessary condition for the demonstration of God’s existence. Descartes explains this point in only two texts, but they are decisive. In the First Replies (discussing the second proof, which he considers as identical to the first one, as we will see): “It is this same idea which shows me not just that I have a cause, but that this cause contains every perfection, and hence that it is God” (AT VII.107–8/CSM II.78). And in the letter to Mesland of 2 May 1644: “Even if there be admitted a first cause which keeps me in existence, I cannot say that it is God unless I truly have the idea of God” (AT III.112/CSMK 8).

In order to understand the reasons for Descartes’s (only) choice, it is necessary to reconstruct the historical context. As such, we must consider the crisis confronting the proofs that, still in Descartes’s time, were regarded, within the Scholastic culture, as the most authoritative model of a posteriori demonstration of God’s existence; that is, Aquinas’s Five Ways. Among the challenges raised against them, one was radical: do they really demonstrate the existence of God as God? This problem had a long history, and authors like Peter Auriol and William of Ockham posed it against the a posteriori proofs. However, at the beginning of the sixteenth century, the difficulty penetrated into the heart of Thomism itself because of Thomas De Vio (Cajetan)’s interpretation of the conclusions of the Five Ways. In his commentary to the *Prima pars* of the *Summa theologiæ* (1507), discussing Auriol’s criticisms, Cajetan affirms that the Five Ways do not demonstrate per se the conclusion that “God exists”. What they directly establish, (p. 216) indeed, is not God’s existence as God, but rather God’s existence insofar as a certain property belongs to him. God’s existence as God is demonstrated only in a second step, *quasi per accidens*: it is deduced from the former conclusion by means of the intermediate premise that God is the substratum of the properties belonging to him.[20]

With Cajetan, for the first time, it was a Thomist theologian who denied that the Five Ways demonstrate per se God’s existence. What is even more relevant is the fact that Cajetan’s interpretation, though rejected by many contemporary Thomists in the name of a presumed “orthodoxy” towards Aquinas, was accepted by a certain number of theologians claiming the conformity of his solution to Thomas’s thought. In the middle of the seventeenth century, the debate concerning the conclusions of Aquinas’s proofs was not only completely open, but also intensified because of a crisis internal to Thomism itself.[21]

Descartes could not ignore the existence of this problem,[22] for at least four reasons. 1) The question had been discussed at length in the *Disputationes metaphysicæ* of Francisco Suárez, who argued that in order to prove that God exists it is not sufficient to demonstrate the existence of a necessary and independent being; what is required is further proof that this being is unique.[23] 2) This criticism circulated in the very same Faculty of Theology at the Sorbonne to which Descartes addressed the *Epistola dedicatoria* of his *Meditations*; indeed, in his *Summa theologica* (1627), Philippe de Gamaches, Professor of Scholastic Theology, claimed that although God's unicity can be inferred from the conclusions of the a posteriori proofs, it will in fact be proven only in the question on the unicity of God.[24] 3) In the *Epistola ad Voetium*, Descartes writes that important (*gravi*) and orthodox (*pii*) theologians showed that Aquinas's arguments are invalid (AT VIIIB.176). 4) Descartes explicitly confronted the key difficulty of the debate, which Caterus had addressed to him: Suárez claims that every limitation proceeds from some causes and, consequently, that if something is from itself, and not from some causes, it is unlimited and infinite.[25] Nevertheless, the limitation could arise from the thing's internal constitutive principles, that is from its essence or form. Accordingly, a being could be uncaused and, at the same time, finite (AT VII.95). This difficulty, which has been generally read as an objection addressed against both Suárez and Descartes,[26] was in fact less a criticism of Descartes himself than a request. Caterus was asking Descartes to resolve the crucial difficulty facing the causal proof of God's existence, that is, the identification of the first cause with God: "I am sure that M. Descartes has plenty of arguments to support a thesis that others have not perhaps defended with sufficient clarity" (AT VII.95/CSM II 69).

(p. 217) In fact, the Cartesian a posteriori proofs intended to solve the problem of the identification of the first cause with God. As Descartes says to Caterus (as I will show below), the second proof establishes this identification by the notion of the *sui causa*, which has been at work since the Third Meditation; and, as Descartes explains to Caterus and Mesland, the first proof reaches the same conclusion insofar as it starts from the idea of God.

This marks a profound difference with respect to the traditional a posteriori demonstrations, one that concerns the proof's structure itself. According to Descartes, the clear and distinct idea of God contains the essence (*quid sit*) and true definition of God. Now, this is, according to Aquinas, exactly the point of departure of an a priori demonstration. For Aquinas, the demonstration of God's existence is an a posteriori argument if the effect takes the place of the definition of the cause,[27] as the question *quid est* follows the question *an est*. By contrast, the effect from which Descartes's proof starts is the idea of God containing His true definition; and, indeed, for Descartes, "we must never ask about the existence of anything until we first understand its essence" (AT VII 107–8/CSM II.78). Descartes, therefore, inserts in the structure of an a posteriori argument the point of departure of an a priori demonstration, thereby departing from the equivalence that Aquinas had established between the effect and the *quid nominis*. The first proof of the *Meditations* is certainly an a posteriori argument, since its point of departure is an effect,

but this effect contains the very definition of the cause, which, according to Aquinas, is what constitutes the point of departure of an a priori demonstration.

However, if Descartes's first proof remains an a posteriori demonstration, albeit in a new structure, the second proof contains components that are truly a priori.

4.2. The Second A Posteriori Proof, the A Priori Proof, and the *Sui Causa*

The main difference between the two a posteriori demonstrations concerns the effect from which they start. The first one begins with the idea of God while the second one starts from the *ego*, which possesses the idea of God. Since the idea of God is essential to both demonstrations, Descartes prefers to present them as a single argument (AT VII.14, 106; IV.112). However, the second proof contains, though not explicitly, an aspect which is not present in the first one: the notion of *sui causa*. The second proof, indeed, both considers the possibility that the *ego* comes from itself and excludes this possibility—not because of "the common scholastic axiom" (AT III.336/CSMK 176) that it is impossible that a thing comes from itself, but because the *ego* cannot be cause of itself (AT VII.48).[28]

Far from being a logical impossibility, the effect in this case cannot come from itself because it does not have the capacity to give itself all the perfections contained in the (p. 218) idea of God. The possibility is therefore left open for a being which is capable of coming from itself; and this turns out to be God, who is not defined, as in the first proof, as a being containing all the perfections (AT VII.46) but as a being *giving* itself all the perfections contained in the idea ("I should have *given* myself all the perfections of which I have any idea, and thus I should myself be God"; AT VII.48/CSM II.33; my translation).

The *sui causa* becomes explicit in the First Replies, where Descartes points out that: 1) he did not state that it is impossible that something is the efficient cause of itself (AT VII 108); and 2) the light of nature dictates that if anything exists we may always ask why it exists—that is, we may inquire into its efficient cause or, if it does not have one, we may demand why it does not need one (AT VII.108), and it is self-evident that whatever exists derives its existence either from a cause or from itself as well as from a cause (*tanquam a causa*) (AT VII.112). This is the case with God, in which exists "such great and inexhaustible power [*tanta et tam inexhausta potentia*] that he never required the assistance of anything else in order to exist in the first place, and does not require any assistance for its conservation, so that he is, in a sense, its own cause [*quodammodo sui causa*]" (AT VII. 109/CSM II.78, modified). Accordingly, since it is He who in fact conserves Himself (*se revera conservat*), it seems appropriate to call God "the cause of himself [*sui causa*])" (AT VII.109). Enquiring into the cause (*causa*) of God's existing or continuing to exist, and attending to the immense and incomprehensible power (*immensa et incomprehensibilis potentia*) contained within the idea of God, we recognize that this power is so exceedingly great (*exuperans*) that it plainly causes His continued existence. Therefore, we will affirm that "God is from himself not in a negative sense [*negative*], but in an absolutely positive sense [*positive*]" (AT VII.110).

Descartes can therefore resolve, for his second proof, the difficulty posed by Caterus: the first cause is God, not because He is uncaused but because He is cause of Himself.

The *sui causa* is also at the center of the discussion of the a priori proof. If one carefully considers the context of the Fifth Meditation and the structure of the proof, it becomes clear that the proof is conducted in a way analogous to demonstrations of mathematics, that is from the *nature* of the thing itself (AT VII.65), in accordance with the structure of the *propter quid* demonstration (or *ex causis*) of Aristotle's *Posterior Analytics*, to which Descartes explicitly refers in his correspondence: "This method of demonstration is even according to Aristotle the most perfect of all [*modus demonstrandi omnium perfectissimus*], for in it the true definition of a thing occurs as the middle term" (AT III.383/CSMK 184).[29] This explains why Descartes can distinguish the demonstration of the Fifth Meditation from the argument criticized by Aquinas in his *Summa theologiæ* (I.2.1)—that is, Anselm's ontological argument—by arguing that his proof does not start from the word 'God', but from God's "true and immutable nature, or essence, or form [*vera et immutabilis natura, sive essentia, sive forma*]" (AT VII.115/CSM II.83). With such a claim, Descartes is in fact relating his proof to the model in the *Summa theologiæ* (I. 2.2), which is not a *per se nota* proposition, but a true a priori demonstration, which (p. 219) Aquinas affirms as impossible on the basis of the impossibility of the condition required by an a priori demonstration: the definition of the subject, that is, in the present case, the definition of God.[30]

In the First Replies, however, Descartes re-elaborates this argument. He acknowledges that there is a "considerable difficulty" (AT VII.116/CMS I 83) in the minor premise, which states that existence belongs to God's true and immutable nature. To resolve this difficulty, he argues as follows: ideas that do not contain true and immutable natures, but which are merely invented and put together by the intellect, can always be divided by the same intellect, not only by an abstraction but by a clear and distinct operation (AT VII. 117). However, if we attend to the immense power (*immensa potentia*) of a supremely powerful being, we cannot think of its existence as possible without also recognizing that it can exist by its own power (*propria sua vi*). Consequently, since it is evident by the natural light that what can exist by its own power always exists, we shall conclude that this being does really exist, that it has existed from eternity, and that it cannot but possess all the other perfections contained in the idea of God (AT VII.85).

Descartes claims that the new formulation of the proof is different only in the *modus loquendi* (AT VII.120). In fact, however, the proof is now grounded not on perfection but on God's power, exactly as the second a posteriori proof. Moreover, like the second a posteriori proof, the argument does not start simply from the essence, but from the essence as an efficient cause.

The notion of the *sui causa* triggers the reaction of Antoine Arnauld, who challenges both its orthodoxy (AT VII.214) and its logical possibility (AT VII.208).[31] Because of Arnauld's objections, Descartes modifies the text of the First Replies,[32] inserting, inter alia, the following addition: "It should however be noted that 'preservation' here must not be under-

stood to be the kind of preservation that comes about by the positive influence [*per positivum influxum*] of an efficient cause; all that is implied is that the essence of God is such that he must always exist" (AT VII.109/ CSM II.79). This introduces two important changes in the First Replies: God's essence does not exert a positive influence, but is the cause by which God *does not* need a cause in order to exist; and God's essence is not an efficient cause in respect of God's existence.

It is precisely on this new understanding of the *sui causa* that the development of the Fourth Replies pivots: "When we ask whether something can give itself existence, this must be taken to be the same as asking whether the nature or essence [*natura sive essentia*] of something is such that it does not need an efficient cause in order to exist" (p. 220) (AT VII.240/CSM II.168).[33] Descartes now affirms that the phrase *sui causa* "cannot possibly be taken to mean an efficient cause; it simply means that the inexhaustible power of God is the cause or reason [*causa sive ratio*] for his not needing a cause" (AT VII.236/ CSM II.165; see the identical formulation in AT VII.164–5). Indeed, nothing can give itself existence in the strict sense usually implied by the proper meaning of the term 'efficient cause' because this is a contradiction (AT VII.240/CSM II.167–8). Efficient causality is therefore only an analogy (*analogia*; AT VII.241 and 243), and it is only by analogy (*per analogiam*; AT VII.240) that God's essence can be related to efficient causality (AT VII. 241).[34]

Nevertheless, Descartes does not give up a causal interpretation of the relationship between essence and existence in God. The essence of God is qualified as the "formal cause", or reason derived from God's essence (*causam formalem, sive rationem ab essentia Dei petitam*), "in virtue of which God needs no cause to exist or to be conserved" (AT VII.236/CSM II.165, modified). Accordingly, God comes from Himself as a formal cause (*tanquam a causa formali*) (AT VII.238).

The phrase *causa sive ratio* must not be interpreted as a reduction of *causa* to *ratio*;[35] on the contrary, what Descartes claims is precisely that the reason for God's existence has to be identified with the formal cause. Indeed, he affirms explicitly that God's essence is not simply a principle (*principium*) of his existence (that is, as we will see below in regard to Cajetan, only a *ratio*), but a cause (*causa*): "Where there is no such risk of error, and we are dealing with God not as a Trinity but simply as a unity, I do not see why the word 'cause' is to be avoided at all costs" (AT VII.238/CSM II.166).

The introduction of the formal cause is therefore intended not to exclude any kind of causality from God, but to give up the notion of efficient causality made explicit in the First Replies. In fact, by resorting to the concept of formal cause, Descartes reduces the *sui causa*/existence implication of the First Replies to the essence/existence implication of the Fifth Meditation.[36] Indeed, he cites the authority of the *Posterior Analytics* to justify the identity between essence and formal cause (AT VII.242).[37] The Fourth Replies, therefore, restore the doctrine of the Fifth Meditation, and at the same time clarify it, making explicit the causal sense of the essence/existence relationship.

(p. 221) This is essential to appreciating the originality of the doctrine of the *sui causa* with respect to the tradition. Scholars have often endeavored to retrace the historical antecedents[38] of what Gilson had qualified as "une nouvelle de Dieu".[39] I think that the Cartesian doctrine of the *sui causa*, as it operates in the Fifth Meditation and is made explicit in the Fourth Replies, marks the last and most radical step of a debate, begun in early modern Scholasticism, concerning the possibility of an a priori demonstration of God's existence.[40]

When Descartes composed his *Meditations*, Aquinas's negation of the possibility of an a priori demonstration of God's existence was the dominant position in this debate, supported by two main arguments: 1) the impossibility of a definition of God (this was the argument used by Aquinas), and 2) the impossibility of a cause in God.[41] Nevertheless, this position did not stand unchallenged; some authors had indeed claimed the possibility of an a priori demonstration of God's existence.

A milestone in this story is Cajetan's commentary to the *Posterior Analytics*, in which two senses of an a priori demonstration are distinguished: 1) *simpliciter*, that is, from the real cause of a property which is really distinguished from the property; and 2) *simpliciter ratione nostri*, that is, from what is not a real cause of the property but is the reason (*ratio*) in virtue of which the property belongs (and not merely is known to belong) to the cause itself. This *ratio* is not a cause, but a principle (*principium*). Now, an a priori *simpliciter* demonstration of God is impossible because God has no cause and there is no real distinction in him. Nevertheless, a *simpliciter ratione nostri* demonstration is possible, and it is in this sense that the theologians, by deducing the divine attributes, affirm, for instance, that immutability is the cause of eternity.[42]

Cajetan's explanation was quite original. In the same period, another Dominican, Francesco Silvestri from Ferrara (Ferrarese), had denied the possibility of affirming in God not only a cause, but a reason.[43] However, despite their radicalness, Cajetan's theses were not forgotten. On the contrary, the idea that there is a principle in God was later extended from the case of the attributes (the only one considered by Cajetan) to the case of divine existence. Such an extension originated from the key difficulty affecting the Five Ways, namely the identification of the first cause with God.

It is in order to answer this problem that Suárez affirms that an *aliquo modo* a priori demonstration of God's existence is possible (*Disputationes Metaphysica*, XXIX.3.32) by resolving both of the objections posed by the Thomists against the *propter quid* demonstration. According to Suárez, knowledge of God's essence is possible, though by negation;[44] and there are reasons (*rationes*), though not a true and real cause (*vera et* (p. 222) *realis causa*), in God.[45] However, Suárez's maneuver was just a single episode within a long and articulated controversy in which a large group of authors had affirmed the possibility of what they called the a priori *quoadnos* proof of God's existence, and that they had grounded on two basic premises opposed to the Thomists's arguments: knowledge of God's essence is possible; and God's essence constitutes the reason (*ratio*) of God's existence and the middle term (*medium*) of an a priori demonstration of his exis-

tence. This, however, is a not *simpliciter* but a *quoadnos* a priori demonstration because of the two reasons already mentioned above: the quidditative knowledge of God's essence is obtained by negations; and the reason (*ratio*) of God's existence is not a true cause (in any sense of 'causality').[46]

It is in this context that Descartes's choices have to be situated lest one isolate the Cartesian doctrine from its historical context and fail to uncover its originality. Descartes goes beyond all the authors who had affirmed the possibility of what they called the a priori *quoadnos* proof of God's existence by affirming the possibility of a demonstration of God's existence starting from the formal cause. Descartes's *causa sive ratio* is a true cause, the formal cause, that unifies what Cajetan and Suárez had separated: the *causa* and the *ratio*. Therefore, God's essence is neither a *ratio cognoscendi* nor even a simple *ratio essendi*, but a true (formal) cause (*causa*) of God's existence.

Descartes affirms, indeed, that God's idea contains His essence, that is God's *quid sit* (AT VII.107), and His true definition (*vera rei definitio*; AT III.383), and that this is not formed by negation (AT VII.45, AT VII.365, AT III.427). He also affirms that God comes from Himself *a causa formali* (AT VII.238). Accordingly, by inverting what Cajetan assumed, Descartes affirms, as we have seen, that God's essence must not be interpreted as a simple *principium* (that is, according to Cajetan, as a simple *ratio*) of his existence, but as a *causa* (AT VII.238).

Consequently, the two restrictions which, in the history of the a priori proof of God's existence in modern Scholasticism, had led thinkers to consider such a proof as a merely *quoadnos* demonstration—namely, the negative character of the knowledge of God's essence and the impossibility of a cause in God—are removed.

It is now clear that the proof of the Fifth Meditation is a *true* a priori demonstration (according to the model of the *Posterior Analytics*), which is the *modus demonstrandi omnium perfectissimus* (AT III.383). This is precisely the meaning of Descartes's repeated affirmation that God's existence has at least the same degree of certainty as mathematical demonstrations. As the Cartesian a priori proof starts from the true definition of God and God's essence, it does not constitute a *quoadnos* version of the a priori demonstration belonging to mathematics, but is, in a strict sense, a *potissima* demonstration that is at least as evident as those of mathematics.

References

Agostini, Igor (2008), *L'infinità di Dio: Il dibattito da Suárez a Caterus. 1597–1641*. Rome: Editori Riuniti.

Agostini, Igor (2010), *L'idea di Dio in Descartes, dalle Meditationes alle Responsiones*. Florence: Le Monnier.

Agostini, Igor (2015), "Descartes's Proofs of God and the Crisis of Thomas Aquinas's Five Ways in Early Modern Thomism: Scholastic and Cartesian Debates", *Harvard Theological Review* 108: 235–62.

Agostini, Igor (2016a), *La démonstration de l'existence de Dieu: Les conclusions des cinq voies de Thomas d'Aquin et la preuve a priori dans le thomisme du XVIIe siècle*. Turnhout: Brepols.

Agostini, Igor (2016b), "L'analogia della sui causa: Descartes e Archimede", in *Archivio di filosofia* 76: 141–53.

Arbib, Dan (2017), *Descartes, la métaphysique et l'infini*. Paris: Presses Universitaires de France.

Beck, Leslie J. (1967), *The Metaphysics of Descartes: A Study of the Meditations*. Oxford: Clarendon Press.

Beyssade, Jean-Marie (2001), *Descartes au fil de l'ordre*. Paris: Presses universitaires de France.

Carraud, Vincent (2002), *Causa sive ratio: La raison de la cause de Suarez à Leibniz*. Paris: Presses Universitaires de France.

Carriero, John (2008), *Between Two Worlds: A Reading of Descartes's Meditations*. Princeton: Princeton University Press.

Clauberg, Johannes (1691), *Paraphrasis in Renati Des Cartes 'Meditationes de prima philosophia, in quibus Dei existentia, et animæ humanæ a corpore distinctio demonstratur'* [originally published 1660], in *Opera omnia philosophica. Ante quidem separatim, nunc vero conjunctim edita, multis partibus auctiora et emendatiora. Quibus accessere præter Indicem locupletissimum, Opuscula quædam nova, nunquam antea edita*. Amstelodami: ex typographia P. et I. Blaev, 341–490. (Facsimile: 2 vols., Hildesheim: Olms, 1968).

Curley, Edwin (1978), *Descartes Against the Skeptics*. Oxford: Basil Blackwell.

Davenport, Anne Ashley (2006), *Descartes's Theory of Action*. Leiden and Boston: Brill.

De Vio [Cajetanus], Thomas (1579), *In Posteriorum analiticorum libros, in In Prædicabilia Porphyrii, Prædicamenta, Postprædicamenta, et libros Posteriorum Analyticorum Aristotelis libros Aristotelis Commentaria* […]. Lugduni: apud I. I. Iuntæ.

Henry of Ghent (1646), *Summa in tres partes præcipuas digesta, ab innumeris propemodum erroribus expurgata, numeris distincta* […]. Ferrariæ: apud Fransciscum Succium.

Gamaches, Philippe de (1634), *Summa theologica. Cum indice triplici quæstionum et capitum, rerum ac verborum, et locorum concionibus utilium*. Paris: Sonnius.

Gassendi, Pierre (1962), *Disquisitio metaphysica seu dubitationes et instantiæ adversus Renati Cartesii Metaphysicam et Responsa*, ed. B. Rochot. Paris: Vrin.

Gilson, étienne (1930), *études sur le rôle de la pensée médiévale dans la formation du système cartésien*. Paris: Vrin.

Goudriaan, Aza (1999), *Philosophische Gotteserkenntnis bei Suárez und Descartes im Zusammenhang mit der Niederländischen Reformierten Theologie und Philosophie des 17. Jahrhunderts*. Leiden: Brill.

Gouhier, Henri (1962), *La pensée métaphysique de Descartes*. Paris: Vrin.

Gueroult, Martial (1953), *Descartes selon l'ordre des raisons*. 2 vols. Paris: Aubier.

Huet, Pierre-Daniel (1689), *Censura philosophiæ cartesianæ*. Lutetiæ Parisiorum: apud Danielem Horthemels.

(p. 224) Kenny, Anthony (1968), *Descartes: A Study of His Philosophy*. New York: Random House.

Koyré, Alexandre (1922), *Essai sur l'idée de Dieu et les preuves de son existence chez Descartes*. Paris: Leroux.

Lee, Richard A. (2006), "The Scholastic Resources for Descartes's Concept of God as *Causa sui*", *Oxford Studies in Early Modern Philosophy* 3: 91–118.

Marion, Jean-Luc (1991), *Sur la théologie blanche de Descartes: Analogie, création des vérités éternelles et fondement*, 2nd edition. Paris: Presses Universitaires de France.

Marion, Jean-Luc (1986), *Sur le prisme métaphysique de Descartes: Constitution et limites de l'onto-théo-logie dans la pensée cartésienne*. Paris: Presses Universitaires de France.

Marion, Jean-Luc (1994), "Entre analogie et principe de raison: la *causa sui*", in Jean-Marie Beyssade and Jean-Luc Marion (eds.), *Descartes, Objecter et répondre*. Paris: Presses Universitaires de France, 305–34.

Nolan, Lawrence, and Alan Nelson (2007), "Proofs for the Existence of God", in Stephen Gaukroger (ed.), *The Blackwell Guide to Descartes' Meditations*. Oxford: Blackwell, 104–21.

Nolan, Lawrence (2014), "The Third Meditation: Causal Arguments for God's Existence", in David Cunning (ed.), *The Cambridge Companion to Descartes' Meditations*. Cambridge: University Press, 127–48.

O'Rourke, Fran (1992), *Pseudo-Dionysius and the Metaphysics of Aquinas*. Leiden: Brill.

Pickavé, Martin (2005), "La notion d'a priori chez Descartes et les philosophes médiévaux", *Les Études philosophiques* 75: 433–54.

Olivo, Gilles (1997), "L'efficience en cause: Suárez, Descartes et la question de la causalité", in Joël Biard and Rushdi Rashed (eds.), *Descartes et le Moyen Âge: Actes du colloque Descartes et la philosophie médiévale*. Paris: Vrin, 91–105.

Revius, Jakob (1648), *Methodi cartesianæ consideratio theologica*. Lugduni: apud Hieronimum de Vogel.

Rodis-Lewis, Geneviève (1971), *L'œuvre de Descartes*, 2 vols. Paris: Vrin.

Schmaltz, Tad M. (2007), *Descartes on Causation*. New York: Oxford University Press.

Schmaltz, Tad M. (2012), "Causation and causal axiom", in Karen Detlefsen (ed.), *Descartes' Meditations: A Critical Guide*. Cambridge: University Press, 82–100.

Scribano, Emanuela (1994), *L'esistenza di Dio: Storia della prova ontologica da Descartes a Kant*. Rome and Bari: Laterza.

Scribano, Emanuela (1997), *Guida alla lettura delle "Meditazioni metafisiche" di Descartes*. Rome and Bari: Laterza.

Scribano, Emanuela (1999), "La conoscenza di Dio nelle lettere di Descartes", in Jean-Robert Armogathe, Giulia Belgioioso, and Carlo Vinti (eds.), *La Biografia Intellettuale di René Descartes attraverso la Correspondance*. Naples: Vivarium, 433–54.

Scribano, Emanuela (2001), "Descartes et les fausses idées", *Archives de Philosophie* 64: 259–78.

Scribano, Emanuela (2006), *Angeli e Beati: Modelli di conoscenza da Tommaso a Spinoza*. Rome and Bari: Laterza.

Suárez, Francisco (1856–78), *Opera omnia*, 28 vols. Paris: apud Ludovicum Vivès. [English translation by John P. Doyle (2004), as *The Metaphysical Demonstration of the Existence of God: Metaphysical Disputations 28–29*. South Bend, IN: St. Augustine's Press.]

Taurellus, Nicolaus (1734), *Synopsis Aristotelis Metaphysices* [originally published 1596], in J. G. Feverlinus, *Taurellus defensus h. e. […] Dissertatio apologetica pro altdorfino atheismi et deismi iniuste accusato et ispius Taurelli Synopsis Aristotelis Metaphysices ob raritatem recusam cum annotationibus editoris*. Normimbergæ: apud Joh. Adamum Schmidium.

(p. 225) Wee, Cecilia (2006), *Material Falsity and Error in Descartes's "Meditations"*. London and New York: Routledge.

Williams, Bernard (2005), *Descartes: The Project of Pure Enquiry*, rev. edition. New York: Routledge.

Wilson, Margaret Dauler (1978), *Descartes*. London, Boston, Melbourne, and Henley: Routledge and Kegan.

Wilson, Margaret Dauler (1986), "Can I Be the Cause of My Idea of the World? (Descartes on the Infinite and Indefinite)", in Amélie Oksenberg-Rorty (ed.), *Essays on Descartes' Meditations*. Berkeley, Los Angeles, and London: University of California Press, 339–58.

Notes:

(*) I am indebted to Emanuela Scribano for her careful reading of this chapter and for her helpful suggestions.

(1) See also *Comments on a Certain Broadsheet* (AT VIIIB.362).

(2) See also AT III.235.

(3) The standard interpretation is already set out by Clauberg 1660, in Medit. III.3.33 (Clauberg 1691: I.390). For one of the few exceptions to this reading, see Gueroult 1953: I.180–1.

(4) On the assimilation a posteriori/*per effectus*, see AT I.251.

(5) On the assimilation a priori/*per causas*, see AT XI.47. On the perfection of the demonstration a priori and *per causas*, see AT II.490, AT VIIIA.14.

(6) Material falsity "occurs in ideas, when they represent *non*-things as things" (AT VII.43/ CSM II. 30; my translation). On material falsity, see Scribano 2001; see also Wee 2006.

(7) On the direct proportional relationship between clearness and distinction and objective reality, see Beck 1967: 177; Geroult 1953: I.232; Gouhier 1962: 128; Kenny 1968: 137; Wilson 1978: 113; Scribano 1997: 69; Davenport 2006: 164; Agostini 2010: 38–9.

(8) See Agostini 2010, whose thesis is accepted also by Arbib 2017: 213.

(9) See AT I.145.

(10) See, on this, Agostini 2010.

(11) For this reason I do not agree with the commentators that project back onto Meditation Three the use of the distinction between *intelligere* and *comprehendere* made by Descartes in the Replies: see, for instance, Gouhier 1962: 212, n. 24; Rodis-Lewis 1971: I. 288; Beyssade 2001: 113; Nolan 2014: 130.

(12) See Marion 1986: 244; Beyssade 2001: 137.

(13) See, for instance, Koyré 1922: 166 ("réalité objective infinie"); Gueroult 1953: I.181 ("l'infinité de sa réalité objective"), 183 ("quantité infinie de réalité objective"); Wilson 1978: 105 ("infinite objective reality"); Marion 1986: 163 ("realité objective infinie"); Carriero 2008: 193 ("infinite objective reality"); Nolan and Nelson 2007: ("infinite objective reality").

(14) See Agostini 2010: 62ff.

([15]) See Wilson 1986.

([16]) Revius 1648: 112; Huet 1689: 116.

([17]) Gassendi (1962), in Medit. III, 4.4: 259.

([18]) On this tension, which had already been pointed out by Williams (2005: 129–30), see Agostini 2010: 66–8.

([19]) See Gueroult 1953: I.267, Curley 1978: 138–9, and especially Scribano 1994: 113.

([20]) Cajetanus IV.32ab.

([21]) For this history, see Agostini 2016a: 29–244.

([22]) See Agostini 2015.

([23]) Suárez, *Disputationes metaphysicæ* (hereafter *DM*) XXIX.2.5, in Suárez 1856–78: XXVI.34b; in Doyle’s translation, pp. 81–2.

([24]) Gamaches 1634: I.2.2., 41a.

([25]) On Suárez’s thesis, see *DM* XXX.2.22. For the identification of this text, see Agostini 2008: 308.

([26]) Gilson 1930: 225.

([27]) *Summa Theologiæ* I.2.2.ad 2um.

([28]) On the presence of the concept of *sui causa* in the second proof of the Third Meditation, denied by Marion (1994), see Scribano 1994: 64, and Goudriaan 1999: 279, n. 78.

([29]) See Scribano 1999 and 2006: 124.

([30]) Not explicitly in *Summa theologiæ*, but in *De potentia* 7.3.c. and in *Summa contra gentiles* I.25.

([31]) On Aquinas’s negation of the *causa sui*, see, for example, *Summa theologiæ* I.3.4.c. I do not agree with Lee (2006) on his interpretation of the Thomistic notion of *virtus essendi* (to which O’Rourke 1992 has recently redrawn attention) as an active power of existence, which allows him to see in Thomas a historical antecedent of Descartes. As far as I know, this interpretation has never been advanced within the Thomist scholarship (Norman Kretzmann’s interpretation, rejected by Lee (2006: 99–100, n. 18), is the standard one and the only admissible one).

([32]) AT III.335.

([33]) The interpretation according to which the Fourth Replies confirm the submission of God to efficient causality (Marion 1991: 433–4) thus seems to me problematic. The decisive argument against it is the fact the *incomprehensibilis potentia* is no longer at work:

the foundation of the *sui causa* is now “the very immensity of God [*ipsamet Dei immensitate*]” (AT VII.231–2/CMS II.162). Though Descartes continues to speak of God’s power, this is now reduced to the immensity of the essence (*inexhausta potentia, sive essentiæ immensitas*, AT VII.236; *immensitas potentiæ, sive essentiæ*, AT VII.237) and the absence of cause in God is now grounded on the fact that God is a *res positiva* (AT VII.237).

([34]) According to Marion (1994: 332–3), this would be an analogy of attribution; according to Carraud (2002: 272ff), on the contrary, it is an analogy of proportionality. In my opinion, Descartes seems to have in mind here more than a metaphysical analogy (Agostini 2016b).

([35]) As it happens, for instance, in Suárez, *DM* XXX: 12, 6. For critics of the interpretation of the *causa sive ratio* in causal terms, see Olivo 1997: 105 and Carraud 2002: 283ff.

([36]) Scribano 1994: 89.

([37]) On Descartes’s reference to Aristotle in the Fourth Replies, see Schmaltz 2007: 60.

([38]) On the *sui causa* in an efficient meaning, see at least Taurellus 1734: §107, 70—see Agostini 2008: 341–3). On the *sui causa* in a formal meaning, see Henry of Ghent 1646: 326–8 (see Scribano 1994: 88–9; Goudriaan 1999: 251, n. 85).

([39]) Gilson 1930: 224.

([40]) For more on this history, which I only sketch here, see the second part of Agostini 2016a.

([41]) See Marion 1994; Scribano 1994: 84–5.

([42]) Thomas de Vio 1579: 283–5.

([43]) Ferrarese, *In Summam contra Gentiles*, I.25.

([44]) Suárez, *DM* XXX, 12.6, in Suárez 1856–78: XXXVI.160ab.

([45]) Suárez, *DM* XII, in Suárez 1856–78: XXV.373a. These reasons are conceived “as if they are causes of the others [*concipiuntur a nobis ac si essent causæ aliarum*]”, but they are never qualified as a kind of cause. On this point see also Schmaltz 2012: 97, and Agostini 2016a: 341–2. On the difference between Descartes and Suárez, see Pickavé 2005: 449ff.

([46]) See Agostini 2006a: 357ff., 427ff., and 491ss.

Igor Agostini

Department of Humanities, University of Salento

Descartes’s Moral Philosophy

Laurence Renault

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Abstract and Keywords

Just as, according to Descartes, there had been no philosophy before his that rested on certain principles, so there could not have been any morality based on reason. That is why he “compared the moral writings of the ancient pagans to very proud and magnificent palaces built only on sand and mud”. Descartes’s ultimate philosophical ambition is thus to define a morality grounded on certain principles. Corresponding to different moments during the realization of this ambitious project are two distinct stages of Cartesian morality. Descartes first announces the rules of a morality that can be followed while one is seeking the foundations of knowledge, then formulates the precepts of his moral philosophy. This chapter examines that project.

Keywords: ethics, morality, virtue, will, action

(p. 226) “[A]ND it was always my most earnest desire to learn to distinguish the true from the false in order to see clearly into my own actions and proceed with confidence in this life” (*Discourse on Method* I, AT VI.10; CSM I.115). Thus Descartes describes the end that he had in view as he set out to constitute his philosophy. If his concern was to establish knowledge on certain foundations, it was in effect “not with a view to solving this or that scholastic problem, but in order that his intellect should show his will what decision it ought to make in each of life’s contingencies” (*Rules for the Direction of the Mind* I, AT X. 361; CSM I.10). Just as, according to Descartes, there had been no philosophy before his that rested on certain principles, so there could not have been any morality based on reason. That is why he “compared the moral writings of the ancient pagans to very proud and magnificent palaces built only on sand and mud” (*Discourse on Method* I, AT VI.7–8; CSM I.114). Descartes’s ultimate philosophical ambition is thus to define a morality grounded on certain principles.

This is illustrated by his famous metaphor of the tree of philosophy that appears in the Letter-Preface to the French edition of the *Principles of Philosophy* (1647):

> Thus the whole philosophy is like a tree. The roots are metaphysics, the trunk is physics, and the branches emerging from the trunk are all the other sciences, which may be reduced to three principal ones, namely medicine, mechanics and morals. By “morals” I understand the highest and most perfect moral system, which presupposes a complete knowledge of the other sciences and is the ultimate level of wisdom. (AT IXB.14–15; CSM I.186)

Corresponding to different moments during the realization of this ambitious project are two distinct stages of Cartesian morality. Descartes first announces the rules of a morality that can be followed while one is seeking the foundations of knowledge, that is, as long as one does not yet have any certain knowledge. This is “an imperfect moral code which (p. 227) we may follow provisionally while we do not yet know a better one”, whose precepts he explains in the third part of the *Discourse on Method* (AT IXB.15; CSM I.186–7).

Descartes then formulates the precepts of his moral philosophy. It is the re-presentation of his metaphysics and, for the first time, the development of his physics in the *Principles of Philosophy* (originally published in Latin in 1644) that makes this morality possible. He enumerates its precepts in a letter for Elisabeth of August 4, 1645, while in a letter of September 15, 1645 he explains to the princess how these precepts relate to the principles of his metaphysics and his physics. He is concerned there with “the highest and most perfect morality” that will appear in the Letter-Preface to the French edition of the *Principles*. What particularly characterizes the perfect morality is that it is dependent upon the principles of Cartesian philosophy, especially its physics. Besides the Letter-Preface of the *Principles* there are two letters to Chanut. In one, from 1646, Descartes writes “I must say in confidence that what little knowledge of physics I have tried to acquire has been a great help to me in establishing sure foundations in moral philosophy” (To Chanut, 15 June 1646, AT IV.441; CSMK 289). In a second letter, in 1649, he explains that “these truths of physics are part of the foundations of the highest and most perfect morality” (To Chanut, 26 February 1649, AT VI.290–1; CSMK 368). The morality that Descartes offers to Elisabeth in 1645 and which is characterized by a dependence on metaphysics is thus “the highest and most perfect morality”.[1]

It is no less the case that Descartes’s moral philosophy, once established, underwent great evolution. The morality of the letters to Elisabeth of August and September 1645 is a morality whose practice proceeds from the love of God, while the morality of generosity, elaborated in the *Passions of the Soul* (1649), is based on the consideration of the greatness of the human being, which in turn is manifested in the correct use of the freedom of the will. As of the autumn of 1645, in the correspondence with Elisabeth, Descartes employs once again the theses from the end of the summer, and he seems to want to fix their problems. This re-elaboration takes place in the correspondence with Chanut and Queen Christina of Sweden during 1647, as well as in the *Passions of the Soul*, whose composition engaged Descartes during the winter of 1645–6. One of the principal problems, still insufficiently studied, of Descartes’s moral philosophy is how to understand what motivated this revision, as well as the relation between the morality of generosity and the principles of Cartesian philosophy. Does the morality of generosity preserve that status of “the

most high and perfect morality"?[2] We will see that it is the recognition of the other as *alter ego* that leads Descartes to elaborate the doctrine of generosity, and that this doctrine is well grounded in the principles of Cartesian metaphysics and physics.

(p. 228) 1. The Provisional Morality

Having announced, at the beginning of the *Discourse on Method*, his design of putting into doubt all of his past knowledge, Descartes immediately explains that "lest I should remain indecisive in my actions while reason obliged me to be so in my judgments, and in order to live as happily as I could during this time, I formed for myself a provisional moral code" (AT VI.22; CSM I.122).[3]

This code consists in three maxims.[4] The first concerns the determination of the content of our actions, as long as our knowledge is not certain. "The first was to obey the laws and customs of my country, holding constantly to the religion in which by God's grace I had been instructed from my childhood, and governing myself in all other matters according to the most moderate and least extreme opinions—the opinions commonly accepted in practice by the most sensible of those with whom I should have to live" (AT VI.22–3; CSM I.122). It is to "custom and example" that Descartes turns—while providing this conformity with some safeguards—in order to determine the content of his actions as long as he is subjecting his old opinions to doubt and has not yet found a way to guide himself with certainty.

The second maxim concerns putting into practice actions whose content has been determined by means of the first precept. "My second maxim was to be as firm and decisive in my actions as I could, and to follow even the most doubtful opinions, once I had adopted them, with no less constancy than if they had been quite certain" (AT VI.24; CSM I.123). Without this determination to act, the lack of certitude about the matter of the action could lead to inaction.

The third maxim concerns the end of morality, that is, contentment. It defines the conditions under which we can achieve contentment while we do not have certain knowledge through which we can orient our desires toward the goods that procure it. This maxim exhorts us to consider that goods subject to fortune are not entirely within our control, that only our thoughts are under our control. This is a clear echo of Stoicism, except that it is not a renunciation of external goods but only a matter of not regretting not having possessed them even when we "do our best" to obtain them but fail.

> My third maxim was to try always to master myself rather than fortune, and change my desires rather than the order of the world. In general I would become accustomed to believing that nothing lies entirely within our power except our thoughts, so that after doing our best in dealing with matters external to us, whatever we fail to achieve is absolutely impossible so far as we are concerned. This

> alone, I thought, would be sufficient to prevent me from desiring in the future something I could not get, and so to make me content. (AT VI.25; CSM I.123–4)

(p. 229) 2. The Morality of August to September 1645 and the Problem of the Other

It is in two of his letters to Elisabeth—August 4 and September 15, 1645—that Descartes develops, for the first time, a morality grounded in the philosophy that he has constituted through methodological doubt. In the first letter, Descartes formulates three new maxims regarding the "three conditions" to which the provisional morality was related (AT IV.265; CSMK 257). In the second letter, Descartes explains the relationship between this morality and the principles of his philosophy.

The first maxim of the August 4, 1645, letter asks that each person "should always try to employ his mind as well as he can to discover what he should or should not do in all the circumstances of life" (AT IV.265; CSMK 257). Reason is henceforth able to determine the content of action; one need no longer regulate oneself by custom and example.

The second maxim asks that each "should have a firm and constant resolution to carry out whatever reason recommends without being diverted by his passions or appetites" (AT IV.265; CSMK 257–8). It is no longer a matter of resolving to act in conformity to doubtful opinions as if they were certain, but of countering the inconstancy and the weakness of the will, which can be diverted by the passions from determining itself to act in conformity with the counsels of reason.

The third maxim concerns contentment. The appeal to reason to direct our action provides us with assurance that we are indeed doing what we can to obtain the external goods we desire but have not been able to possess. Each must thus "bear in mind that while he thus guides himself, as far as he can, by reason, all the good things which he does not possess are entirely outside his power. In this way he will become accustomed not to desire them" (AT IV.265–6; CSMK 258). Descartes here provides a rational foundation for the moderation of desires—a condition of contentment—beyond the simple conviction that we have done "our best" invoked by the provisional morality.

In this letter, Descartes indicates, equally, that these three maxims ought to be accompanied by "the principal truths whose knowledge is necessary to facilitate the practice of virtue and to regulate our desires and passions, and thus to enjoy natural happiness" (AT IV.267; CSMK 258). The difficulty, in morality, concerns not the discovery of rational precepts of action, but rather their being put into practice. It is in this sense that the principles of philosophy must ground morality—namely, in so far as they must contribute to instilling a virtuous disposition in us, and not in so far as they allow us to turn morality into an "exact science" and establish by way of those principles, in a "determinate casuistry", what should be done in all of life's occurrences.[5]

Descartes presents these truths in his letter of September 15, 1645.

(p. 230)

> The first and chief of these is that there is a God on whom all things depend, whose perfections are infinite, whose power is immense and whose decrees are infallible. This teaches us to accept calmly all the things which happen to us as expressly sent by God. Moreover, since the true object of love is perfection, when we lift up our minds to consider him as he is, we find ourselves naturally so inclined to love him that we even rejoice in our afflictions at the thought that they are an expression of his will. (AT IV.291–2; CSMK 265)

The knowledge of the divine nature deployed by metaphysics allows us to influence our desires by way of moderating them and thus attaining contentment no matter what the circumstances. The omnipotence and the infallibility of the divine decrees temper our desires in that they render us conscious of the fact that we cannot change the order of things. As for the love of God that arises from the consideration of divine perfection, it inclines us to prefer accomplishing God's will rather than our own; it eliminates the desire to change the course of things and the affliction we experience in the face of adverse events.

The second of the truths we must know is "the nature of our soul. We must know that it subsists apart from the body, and is much nobler than the body, and it is capable of enjoying countless satisfactions not to be found in this life" (AT IV.292; CSMK 265–6). The rationale for this is that this consideration "prevents us from fearing death, and so detaches our affections from the things in this world that we look upon whatever is in the power of fortune with nothing but scorn" (AT IV.292; CSMK 266).

These two principal truths of Cartesian metaphysics—the existence of a perfectly sovereign God and the substantial distinction between the soul and the body—motivate us to detach ourselves from the goods of fortune, which is necessary for us to act virtuously and to attain contentment.

Descartes next presents a truth relative to physics. He writes that "for this it may be useful to judge worthily of the works of God and to have a vast idea of the extent of the universe, such as I tried to convey in the third book of my *Principles*. For if we imagine that beyond the heavens there is nothing but imaginary spaces, and that all the heavens are made only for the service of the earth, and the earth only for man, we will be inclined to think that this earth is our principal abode and this life our best" (AT IV.292; CSMK 266). A consideration of the infinite extension of the universe contributes to a detachment from the goods of this world and to the moderation of desire by preventing any kind of anthropocentric view of the universe.[6]

The last truth to be considered is that

> though each of us is a person distinct from others, whose interests are accordingly in some way different from those of the rest of the world, we ought still to think that none of us could subsist alone and that each one of us is really one of the many parts of the universe, and more particularly a part of the earth, the state, the society and the family to which we belong by our domicile, our oath of allegiance and our birth. (p. 231) And the interests of the whole, of which each of us is a part, must always be preferred to those of our own particular person […] if someone considers himself a part of the community, he delights in doing good to everyone, and does not hesitate even to risk his life in the service of others when the occasion demands. (AT IV.293; CSMK 266)

Considering the totality on which he depends, the individual is distracted from his own particular interest and inclined to look after the common good, often to the detriment of his own interest. Where does this principle, which was never mentioned by Descartes in earlier writings, come from? The philosopher indicates that, on the one hand, one is "naturally led" to consider that one owes more to "the public of which one is a part" than to oneself. When one "knows and loves God as he should, he has a natural impulse to think in this way; for then, abandoning himself altogether to God's will, he strips himself of his own interests, and has no other passion than to do what he thinks pleasing to God" (AT IV. 294; CSMK 267).

On the other hand, Descartes indicates the connection between this principle and the consideration of the universe: "Each of us is really one of the many parts of the universe, and more particularly a part of the earth, the state, society and the family" (AT IV.293; CSMK 266). The de-centering with regard to one's own interest for the sake of the community to which one belongs is thus articulated in the first and third of the aforementioned principles.

The fundamental problem with this first version of Descartes's moral philosophy is in the justification of the last principle. It is often said that Cartesian metaphysics is solipsistic. Founded on the relation of the *ego* to itself in the *cogito* that confers its epistemological primacy, it does not leave room for other "subjects"—it does not allow for access to an other as such. The only otherness which it recognizes is that of God.[7] Thus, how can it incite us to place the interest of all above our own particular self-interest?

Relating this last principle to the other truths will not resolve this difficulty. The love of God, as it is analyzed by Descartes, cannot directly ground a commitment "to do good for everyone and to devote one's life to the service of the other", but only a detachment from the goods of fortune, grounded on an acquiescence to the divine will.[8] Except by appealing, as Descartes sometimes does, to the Christian virtue of charity,[9] based on the dogma according to which God loves human beings, one cannot derive a care for the other from acquiescence to the divine will. There is thus a gap, in all philosophical strictness, between the love of God and taking account of the interests of other human beings.

As for the consideration of the indefiniteness of the universe, it seems equally difficult to derive from it a recognition of the other. Envisaging the different domains of human (p. 232) community—state, society, family—as limitations upon the more vast whole that is the material universe does not by itself allow for taking into account the specificity of human communities. The relation to the other as such does not appear to follow from the physical thesis of the indefiniteness of the universe. The notion of this “whole” of which one is but a part may introduce a de-centering with regard to oneself, but not a recognition of the other as *alter ego*.

Now a moral philosophy that fails to register the field of inter-human relations cannot be satisfying. Descartes is aware of this difficulty. His final writings dedicated to morality testify to this, in that they reveal his concern to ground the recognition of the other and to make it an essential element in his moral philosophy. This is the role that will be played by the doctrine of generosity. This seems to be the reason for the evolution of Cartesian morality, from the letters of the summer of 1645 to the *Passions of the Soul*.

3. 1645–7: From the Supreme Good In-Itself to the Supreme Good For Us

By the time of the letter to Elisabeth of October 6, 1645, Descartes has come back to the question of the origin of attention to the other. Elisabeth, in her reply of September 30, 1645, had expressed her reservations about the principle of the prevalence of the interest of the whole over one’s own interest in particular, a question which Descartes had summarized as follows: “To know, whether it is more correct to see everything in relation to oneself or to put oneself to great anxiety for others” (AT IV.308; CSMK 269). His response is that

> if we thought only of ourselves, we could enjoy only the goods which are peculiar to ourselves; whereas, if we consider ourselves as parts of some other body, we share also in the goods which are common to its members, without losing any of those which belong only to ourselves. With evils, the case is not the same, because philosophy teaches that evil is nothing real, but only a privation. When we are sad on account of some evil which has happened to our friends, we do not share in the defect in which evil consists; and whatever sadness or distress we feel on such occasions cannot be as great as the inner satisfaction which always accompanies good actions, and especially actions which proceed from a pure affection for others which has no reference to oneself. (AT IV.308–9; CSMK 269–70)

Descartes subsequently explicates this contentment that arises from affection for the other, even when its outcome affects us with sadness. He does this by taking up the theme of the pleasure of a spectator at the theater, already evoked in the letter to Elisabeth of May 18, 1645, but without relation to compassion and without any particular connection to tragic spectacles, that is, to the evils undergone by the characters. In the letter of October 6, 1645, Descartes stresses that the compassion of the spectator with respect to

(p. 233) the events that assault the characters in tragedies is accompanied by contentment. This theme has a double interest. On the one hand, it highlights a compassion that, in the context of theatrical fiction, is addressed at the other in general and not only at those who are our friends. On the other hand, this compassion is not just something experienced by strong souls; rather, everyone can experience it at the theater. Now this experience has a moral dimension. “The contentment which [the soul] finds in weeping in some pitiable and tragic episode in the theatre arises chiefly from its impression that it is performing a virtuous action in having compassion for the afflicted” (AT IV.308; CSMK 270). The simple fact of not being insensible to the evils experienced by fictional characters is a virtuous action. The spectator’s pity is evidence of this “pure affection for others which has no reference to oneself” that Descartes has evoked in defense of his principle of the prevalence of the whole over the individual. Still, he invokes here only an experience that everyone can have. He does not propose any philosophical principle the consideration of which would lead us to experience this pure affection for the other in real life.

Another difficulty raised by Elisabeth is again an occasion, in this same letter of October 6, 1645, to delve into the question of the relation to the other. Elisabeth had written, in her reply of September 30, “what measure will we have for comparing those things that are not known to us equally well, such as our own merit and that of those with whom we live? A naturally arrogant person will always tip the balance in his favor, and a modest one will esteem himself less than he is worth” (Elisabeth to Descartes, 30 September 1645, in Descartes 1989: 137; Descartes 2013: 115). Descartes responds that

> besides, the vanity which makes a man think better of himself than he deserves is a vice which only weak and base souls display; but this does not mean that the strongest and most noble souls have a duty to despise themselves. We must do ourselves justice, and recognize our perfections as well as our faults. Propriety forbids us to boast of our good qualities, but it does not forbid us to be aware of them. (AT IV.307–8; CSMK 269)

This is the first appearance of the theme of self-esteem compared to the esteem of others in Descartes’s moral thought. Attending to the other despite one’s own interest must not be understood as self-contempt.

In the letter to Chanut of June 6, 1647, it is the moral usage of the thesis of the indefiniteness of the universe that is analyzed in a different manner. Descartes evokes the immensity of creation and the consequent possibility that the goods proper to intelligent creatures might be shared with creatures other than human beings, creatures that might reside “in the stars or elsewhere” (AT V.55; CSMK 321). He writes:

> The goods which could belong to all intelligent creatures in an indefinite world […] do not diminish those we possess. On the contrary, when we love God and through him unite ourselves willingly to all the things he has created, then the more great, noble and perfect we reckon them, the more highly we esteem ourselves as being parts of a more perfect whole. (AT V.55–6; CSMK 322)

(p. 234) Descartes is insisting here that the grandeur of the universe must not be understood in only a spatial sense. Its immensity derives from the omnipotence and the perfection of God. The universe thus must equally be grand as an "accomplishment". The indefiniteness of the material world is correlative to its perfection.[10] It is thus probable that intelligent creatures other than humans exist.[11] The neglect of our own interest in so far as we are a part of an immensely vast whole is accompanied by the indissociable recognition of our own grandeur and that of the beings who resemble us, in so far as these are intelligent creatures who contribute to the perfection of this whole. Self-esteem and the esteem of other intelligent beings are correlated here. However, what the nobility of "intelligent creatures" consists in is not yet explained.

Finally, the letter to Queen Christina of November 20, 1647 represents the passage from the first version of the moral philosophy to the morality of generosity. Descartes here distinguishes the supreme good in-itself, which is God, and the supreme good for us. "Free will is in itself the noblest thing we can have […] and so its correct use is the greatest of all the goods we possess" (AT V.85; CSMK 326). The morality elaborated in the summer of 1645 (based on the love of God and the consideration of the created world) appears in retrospect as based on the consideration of the supreme good in-itself, while the letter to Christina is the first step in the elaboration of a moral philosophy based on the supreme good for us.

Now by transforming the fundamental motive of moral action from the consideration of divine perfection to that of the grandeur of our free will, Descartes overcomes the difficulty of taking account of the other. The relation to oneself in which generosity consists, based on the just estimation of one's own grandeur, carries in itself the recognition of the other as *alter ego*, capable of the same grandeur as myself and estimable in the same way. One of the principal motives for the evolution of Descartes's moral philosophy thus seems to have been to resolve the difficulty of inscribing moral action within the domain of inter-human relations.

4. Generosity: *Ego* and *Alter Ego*

Generosity "causes a person's self-esteem to be as great as it may legitimately be". This is because he is aware that "nothing truly belongs to him but this freedom to dispose his (p. 235) volitions" and that he experiences in himself "a firm and constant resolution to use it well" (*Passions of the Soul*, art. 153, AT X.445–6; CSM I.384). His self-esteem, based on that which truly constitutes his grandeur, is legitimate. Now what makes this good the greatest of all our goods is that it is totally in our power. In this way, it is the only perfection that truly belongs to us. Other goods—honors, riches, beauty, knowledge—not being completely in our power, do not properly belong to us. Generosity thus rests on a refinement of what constitutes my true self, what properly belongs to my *ego*.

This authentic apperception of self is indissociable from the recognition of the other as *alter ego*. It is indissociably an authentic apperception of the other. The free disposition of one's volitions is absolutely in the power of each person. "Since others have free will just

as much as we do, they may use it just as well as we use ours" (*Passions of the Soul*, art. 155, AT XI.447; CSM I.385).This principle of the evaluation of our own grandeur is thus fundamentally altruistic because it is egalitarian, unlike all the evaluations based on the possession of other goods, including knowledge. Descartes had already indicated this in his preface to the Latin edition of the *Principles*:

> There are two requisites for the kind of wisdom just described, namely the perception of the intellect and the disposition of the will. But whereas what depends on the will is within the capacity of everyone, there are some people who possess far sharper intellectual vision than others. (AT IXB.22; CSM I.191)

It follows that if we are generous, "we do not prefer ourselves to anyone else" (*Passions of the Soul*, art. 155, AT XI.447; CSM I.385). Moreover, generous people "esteem nothing more highly than doing good to others and disregarding their own self-interest" (*Passions of the Soul*, art. 156, AT XI.447–8; CSM I.385). Our grandeur asserts itself in the highest degree when the good of the other takes precedence over the search for goods of fortune for ourselves. Still, the good of the other does not consist in the possession of goods of fortune. Evidence for this is found in the development of the theme of pity in the great souled person in the *Passions of the Soul*. Pity in the generous person is an altruistic pity because it is not inspired by self-love and the fear of suffering the evils that are striking the other.

> Whereas the ordinary man has compassion for those who complain, because he thinks the evils they suffer are very distressing, the chief object of the pity of the greatest men is the weakness of those whom they see complaining. For they think that no misfortune could be so great an evil as the timidity of those who cannot endure it with forbearance. (Art. 187, AT XI.470; CSM I.395)

The benevolence of the generous person thus desires for the other a greatness of soul. He wants for the other "the supreme good for us" and the happiness that accompanies it. The relation of the *ego* to itself in generosity, based on self-esteem, is thus a relation to oneself that includes the recognition of the other as *alter ego*. Refocusing the *ego* on what properly belongs to it—freedom of the will—both detaches it from a conception of its own interest as linked to the possession of goods of fortune, and decenters it toward the other.

(p. 236) As for sacrifice for the good of the community, we find this theme in the *Passions of the Soul*. Descartes cites "those who have exposed themselves to a certain death in defense of their sovereign or their city, or sometimes even for particular persons to whom they were devoted" (Art. 83, AT XI.391; CSM I.358). These actions proceed from a love of the totality that one constitutes with other individuals and from the judgment according to which we are not the finest part of this whole, otherwise called "the love of devotion". Devotion is not unique to the generous person. A father is devoted toward his children. "He regards them […] as other parts of himself and seeks their good as he does his own, or even more assiduously. For he imagines that he and they together form a whole of which he is not the better part, and so he often puts their interest before his own and is not afraid of sacrificing himself in order to save them" (Art. 82, AT XI.389; CSM I.357).

Nonetheless, the generous person undoubtedly endorses this love for the community to which he belongs. If a father considers his children as "other parts of himself", in the sense that they are flesh of his flesh, the generous person considers the other as his *alter ego*. And he places above his own interest not only the interest of the other, but equally that of the human community to which he belongs, considered as a whole. In effect, Descartes cites "the greatest crimes that men can commit, such as the betrayal of cities, the killing of sovereigns, and the extermination of whole nations" (Art. 190, AT XI.472; CSM I.396). These are crimes against human communities; what makes regicide scandalous is not so much the person of the prince who is killed, but the fact that this is an act against the community he governs. If to attack human communities is the greatest of crimes, then the greatest expression of virtue is to defend one's town or country at the expense of one's own life, or so Descartes claims in the letter of September 15, 1645. The generous person is benevolent not only toward each of the individuals of the community to which he belongs, but equally to the community itself. The human being expresses his grandeur to its highest degree in his relation to the other and to the human community to which he belongs, undoubtedly because this community is not only the most perfect type of all, but also the arena in which the grandeur of the individual—the right use of freedom of the will—can fully express itself.

In this new stage of Descartes's moral philosophy, the principal truth to consider in order to "facilitate putting virtue to work" is the freedom of the will. "If we occupy ourselves frequently in considering the nature of free will and the many advantages which proceed from a firm resolution to make good use of it […] we may arouse the passion of generosity in ourselves and then acquire the virtue of generosity" (Art. 161, AT XI.453–4; CSM I. 388). This theme of the grandeur of free will connects the moral philosophy with Cartesian metaphysics. It is present in his youthful writings, in the text devoted to the *tria mirabilia* (AT X.218), and it is developed in the Fourth Meditation, and then in the letter to Mesland of February 9, 1645. Its presence in the texts of 1647–9 is only a rereading of the metaphysics of the *ego* from the perspective of its grandeur. One can thus say, with Geneviève Rodis-Lewis, that the doctrine of generosity is "the final fruit of Cartesian metaphysics".[12] For this reason, it cannot be correct to say that the morality of generosity is a form of moral institution or "constitution of the generous conscience" that remains (p. 237) "exterior to metaphysical reasoning" because it is based on "a reflection upon the object of legitimate self-esteem"[13] and not on a consideration of the perfection of God and the substantial distinction of soul and body. To be sure, generosity comes about through a consideration of the grandeur of our free will, not of the metaphysical truths presented in the letter of September 15, 1645. But the grandeur of free will is a truth of Cartesian metaphysics. In this way, the morality of generosity is well grounded in metaphysics and represents its ultimate development. In generosity, the self no longer sees itself as a subject of representation, with the other merely as the object represented; rather, it sees itself as a free subject recognizing the other as a free subject equal to itself. In generosity, the relation of the *ego* to itself is not an egoistic one: neither that moral egoism that consists in not taking the point of view of an other except as a function of our own self interest, nor that egoism of the *ego* that is sure of itself and establishes itself "as the only and

necessary center of every possible world"[14]—the egoism of the subject of representation. It is the phenomenon of admiration, of which esteem is a species, that testifies precisely to the fact that the other, seen from the point of view of what constitutes his grandeur, does not allow himself to be constituted as an object.[15] The *cogito* of the generous person is an intersubjective *cogito*.

As for the theme of the prevalence of the interest of the human community over one's own self-interest, it is linked to the thesis of the indefiniteness of the universe, which itself follows from metaphysics. Focusing attention on what constitutes the grandeur of the universe, this thesis consecrates communities of free beings as a kind of most perfect totality, since the perfection of intelligent creatures resides in their free will. Thus, the thesis of the human being's belonging to a community of free beings, a community whose interest takes precedence over that of the individual, is essential to generosity; and it finds its roots in the consideration of the indefiniteness of the universe, even if in order to see this filiation it is necessary to trace the genesis of the institution of attention to others in Cartesian texts. This is why, again in 1649, while the morality of the summer of 1645 has been replaced by the morality of generosity, Descartes assures Chanut that the truths of physics "belong to the foundations of the highest and most perfect morality". It is not only metaphysics—through the consideration of the grandeur of free will—but, equally, the physical thesis of the indefiniteness of the world that grounds the morality of generosity. It corresponds well to the final version of the "highest and most perfect morality".[16]

5. Conclusion

The evolution of Descartes's moral philosophy, from its first formulation in the summer of 1645 to the *Passions of the Soul* in 1649, testifies to his concern to establish attention to the other on the basis of the principles of Cartesian thought. One model seems to dominate at first, namely Christian charity, in which love of the other is based on the (p. 238) love of God and acceptance of the divine will, in so far as Christian revelation is that of a God who loves human beings. It seems that Descartes takes this as his inspiration in the first version of his morality, when he affirms that the love of other human beings follows from the love of God, as he does in the letter to Elisabeth of September 15, 1645. However, the philosophical transformation of the model of Christian charity stumbles on two obstacles. First, we cannot pretend, philosophically, to know God's ends, and in particular to be able to affirm that he loves human beings (which would allow the love of God, which consists in wanting that his will be done, to be the love of one's neighbor). Second, we cannot even pretend that the human being occupies a privileged place in creation without undermining the omnipotence of God (since anthropomorphism is intimately connected with the finitude of the world). Descartes thus seeks to link directly consideration of self and consideration of the other, and in a way that allows us to conceive that the interest of the other prevails over self-interest. Two themes play an important role here: that of the perfection of the universe, which allows for the grandeur of the universe to be constituted by certain creatures, yet without falling into anthropomorphism; and that of the perfection of free will, which is what is most proper to us and through which we come closest to

divine perfection. What opens the way for a relation to the other is the relation to the self from the perspective of true esteem of our grandeur. This is not only because others have a free disposition of the will that is equal to mine—that is, the same grandeur as myself—but also because the exercise of this free will reaches its perfection only in the relation to other free beings.

To conclude, the evolution of Descartes's moral philosophy between 1645 and 1649 does not touch the precepts announced in the letter to Elisabeth of August 4, 1645. These retain their value in the morality of generosity, and Descartes never refers to any others. An action is virtuous and a source of contentment if it conforms to what reason commands, that is, if the will does not allow itself to be diverted by the passions, by the attachment to goods of fortune; these precepts maintain their full value in 1649.[17]

The morality of the summer of 1645 and that of the *Passions of the Soul* are distinguished only when it comes to the philosophical motive for virtuous action. In 1649, this motive is no longer the love of God but the consideration of the grandeur of free will in oneself and in others. Nonetheless, this is not a minor change. It means that the virtuous life now fits within the domain of the human community and the relation to the other, and no longer primarily in relation to God and acquiescence to his will. The moral life, the experience of someone who strives to act virtuously, is now very different.

Translated by Steven Nadler

References

Beyssade, Jean-Marie (2001), *Descartes au fil de l'ordre*. Paris: PUF.

Descartes, René (1989), *Correspondance avec Élisabeth*, ed. Michelle and Jean-Marie Beyssade. Paris: Flammarion.

Descartes, René (2013), *The Correspondence Between Princess Elisabeth of Bohemia and René Descartes*, ed. Lisa Shapiro. Chicago: University of Chicago Press.

Gilson, Etienne (1925), *René Descartes, Discours de la méthode: Texte et commentaire*. Paris: Vrin.

Gueroult, Martial (1953), *Descartes selon l'ordre des raisons*, vol. II. Paris: Aubier.

Kambouchner, Denis (2008), *Descartes et la philosophie morale*. Paris: Hermann.

Marion, Jean-Luc (1991), "L'*ego* altère-t-il autrui? La solitude du *cogito* et l'absence d'*alter ego*", in Jean-Luc Marion, *Questions cartésiennes*. Paris: Presses Universitaires de France, 189–219.

Renault, Laurence (2000), *Descartes ou la félicité volontaire*. Paris: Presses Universitaires de France.

Renault, Laurence (2015), "La constitution de la morale cartésienne", in Frédéric de Buzon, Elodie Cassan, and Denis Kambouchner (eds.), *Lectures de Descartes*. Paris: Editions Ellipses, 329–57.

Rodis-Lewis, Geneviève (1970), *La morale de Descartes*. Paris: PUF.

Rodis-Lewis, Geneviève (1997), "Le dernier fruit de la métaphysique cartésienne: la générosité", in Geneviève Rodis-Lewis, *Le développement de la pensée de Descartes*, Paris: Vrin, 191–202.

Notes:

([1]) This is contrary to Gueroult's (1953: ch. 20) reading, according to which Descartes never succeeded in constituting this perfect morality (which Gueroult interprets as consisting in deducing from the principles of philosophy the knowledge of what must be done in each circumstance of life). I have critiqued that reading in Renault 2015.

([2]) Cf. Kambouchner 2008.

([3]) For a detailed analysis of the three provisional moral rules, see Gilson 1925 and Rodis-Lewis 1970: ch. 1.

([4]) On the status of the conclusion of this moral code, see Beyssade 2001.

([5]) Gueroult 1953.

([6]) On the moral usage of anthropocentrism in Descartes's texts, see Renault 2015.

([7]) See, in particular, Marion 1991.

([8]) Marion (1991: 206) claims that "no Cartesian text allows us to suppose that divine alterity makes possible, even demands the recognition of finite alterity".

([9]) See the letter to Voetius of 1643, AT VIIIB.112: "This charity, that is, this holy friendship that we bear toward God, is, because of God, directed at all men, in so far as we know that it is they who are loved by God." See also the letter of 6 October 1645, AT IV. 304–17; CSMK 268–73.

([10]) This is not new. At the beginning of the third part of the *Principles* (III.1) the physical thesis of a universe without limits is presented as a consequence of the goodness and the omnipotence of God the creator. It is necessary, Descartes writes, that "we must bear in mind the infinite power and goodness of God, and not be afraid that our imagination may over-estimate the vastness, beauty and perfection of his works. On the contrary, we must beware of positing limits here, when we have no certain knowledge of any, on pain of appearing to have an insufficient appreciation of the magnificence of God's creative power" (AT IXB.103; CSM I.248). On the other hand, in his letter to Elisabeth of Septem-

ber 15, 1645, Descartes had put the emphasis on the extension of the universe, leaving in the shadows the dimension of perfection.

([11]) Here we find the reversal of the moral usage of anthropocentrism.

([12]) See Rodis-Lewis 1997.

([13]) Kambouchner 2008: 306, 307.

([14]) Marion 1991: 191.

([15]) See Renault 2000.

([16]) I do not agree with Kambouchner, who, thinking that there is a gap between generosity and metaphysics, claims that the morality of generosity does not fulfill the program of the Letter-Preface of the *Principles of Philosophy* (Kambouchner 2008: 308).

([17]) See *Passions of the Soul*, art. 49, AT XI.367–8.

Laurence Renault

Deaprtment of Philosophy, Paris Sorbonne University Abu Dhabi

Descartes, Politics, and “True Human Beings”

Delphine Antoine-Mahut

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Edited by Steven Nadler, Tad M. Schmaltz, and Delphine Antoine-Mahut

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Abstract and Keywords

Unlike many of his contemporaries, Descartes wrote nothing that resembles a political treatise. However, to think about the relations between human beings, he employs a mechanist anthropology. And in tandem with this, Descartes theorizes about what, in these human beings, is a high political and ethical requirement. In the *Passions of the Soul*, this requirement is conceived as both a passion and a virtue: generosity. So it is precisely because Descartes was compelled to reflect on the “true human being” in all his complexity that he provides us with a politics that is both demanding and realist.

Keywords: politics, anthropology, passions, virtue, generosity

(p. 240) 1. An Undiscovered Cartesian Politics?

UNLIKE Nicolai Machiavelli (1469–1527), Hugo Grotius (1583–1645), Bento (Benedictus) de Spinoza (1632–77), Thomas Hobbes (1588–1679), Samuel von Pufendorf (1632–94), or John Locke (1632–1704), Descartes wrote nothing that resembles a political treatise. He even considered such an undertaking to be in vain. The variations in the experiences and humors of human beings, the unpredictable character of life’s encounters, and the evolutions that people undergo all render obsolete any attempt to establish a priori common rules of living together. In a philosophy that, from the sixth part of the *Discourse on Method* on, defines itself by its practical concerns (AT VI.61–2/CSM I.142), this absence of a politics or a political treatise could be seen as a defect. It is something lacking from Descartes’s philosophy, and this lack could be prejudicial to the completeness, even the coherence of that philosophy.

The embarrasment only increases when one considers as well the ways in which Descartes’s thought has in fact been extended to the political domain, for these often seem incompatible with our common view of his philosophy, as well as with each other.

Thus, when Pierre-Sylvain Régis (1632–1707) attempted to bring to the public something like a coherent political application of Descartes’s thought, he had recourse to Hobbes, even though everything we know about Descartes puts him at a great distance from Hobbes in metaphysics.[1] Somewhat later, when Montesquieu (Charles Louis de (p. 241) Secondat, 1689–1755) or Jean-Jacques Rousseau (1712–78) defend Cartesian conceptions of order, law, or the general will, it has more to do with the ideas of the Cartesian Nicolas Malebranche (1638–1715) than with those of Descartes himself. In the nineteenth century in France, Descartes became, as well, the standard-bearer of revolutionary political thought breaking with an alienating past, rather than the promoter of liberal reason hostile to the sensualism of eighteenth-century philosophers and concerned to preserve civil peace.[2] These contradictory representations finally come to clash on the contemporary scene.[3] Thus, in communist thought, Descartes is as much the promoter of a depoliticized “I”, unaware of its determining historical and social conditions and its connections with others—an abstract and solipsistic “*ego cogito*”[4]—as the first to have thought about the conditions for disalienation within bourgeois society[5] and to have exhibited a particular concern for the liberty of all. For liberal thought, Descartes is alternately the name for a political constructivism that transposes to the social domain the demand for a rupture with the past and with traditions—the frightening volition to make the real rational[6]—and the ambiguous precursor of an ideal of democracy later theorized by Alexis de Tocqueville (1805–59)[7] and that finally links up with the egalitarianism of Jacques Rancière.[8] Finally, in gender studies, the theses of the universality of good sense and the substantial distinction between soul and body has both been seen as justifying the intellectual emancipation of women[9] and denounced as a case of phallocentric reason excluding women from its emancipatory project.

If Descartes’s political ideas are reduced to the different political instrumentalizations of his thought, should we conclude that no such political ideas can be found in Descartes himself? And if this conclusion is not warranted, how then are we to make sense of this diversity?

I want to show that it is precisely because he was compelled to reflect on the “true human being [*vrai homme*]”, in all his complexity, that Descartes provides us with a politics that is both demanding and realist.

The “true human being”, such as Descartes defines it, is in effect a person united to a body and to other human beings within a whole. As such, this true human being is far from being “perfectly reasonable” (Letter to Elisabeth, May 1646, AT IV.412/CSMK 288). (p. 242) A society composed of human beings who would be perfectly reasonable and who, consequently, would always reveal themselves to be honest and charitable to others could only exist in the “world of novels” (Letter to Mersenne, 3 May 1638, AT II.131). To think about the relations between such individuals, or what we will here call a realist politics, Descartes employs a mechanist anthropology. We see this essentially in his correspondence and in his polemical writings, such as those around the Utrecht affair,[10] and it can be illuminated in a theoretical manner by his physiological writings, such as the *Treatise on Man*, or by texts that are more explicitly devoted to the unitary dimension of the hu-

man being, such as the *Passions of the Soul*.[11] This Descartes is certainly closer to Hobbes and Machiaavelli than the Descartes of the metaphysical writings.

In tandem with this, Descartes theorizes about what, in these true human beings, is a high political and ethical requirement. In the *Passions of the Soul*, this requirement is conceived as both a passion and a virtue: generosity. This has

> two components. The first consists in his knowing that nothing truly belongs to him but his freedom to dispose his volitions, and that he ought to be praised or blamed for no other reason than his using this freedom well or badly. The second consists in his feeling within himself a firm and constant resolution to use it well—that is, never to lack the will to undertake and carry out whatever he judges to be best. To do that is to pursue virtue in a perfect manner. (AT XI.445–6/CSM I.384)

Thus, a true human being is distinguished from animals not only by the possession of a completely rational soul. He is characterized, above all, by the resolution to use his free will well, in all the circumstances of life, and to bear in mind that every other human being has this capacity to an equal degree.

The uniqueness and power of the Cartesian project thus consists in holding together these two dimensions: the true human being understood as part of a whole but never completely dissolved in it, and the true human being conceived as individual or absolute center of initiative, without, for all that, establishing individualism.

2. On “Unreasonable” True Human Beings

Very quickly and quite often, Descartes faced the necessity of taking sides, or, as he explains to Huygens, “initiating the resistance” and “waging a little war”[12] to defend his philosophy against public attacks with big political stakes, especially the battle for control over teaching in the university and against censorship over publication.

(p. 243) The Letter-Preface to the *Principles of Philosophy* (1647), the work which Descartes hoped would replace manuals such as those of Eustache de Saint-Paul[13] in the curriculum of the Schools, bears traces of the quarrel at Utrecht. This is where Descartes and the Dutch physician Henricus Regius faced off against the Aristotelian theologians, notably Gisbertus Voetius (1589–1676) and Marten Schoock (1614–69), in a series of polemical texts implicating the capacity of the “new philosophy” to ensure peace in the state and in the universities. But this quarrel also, in the end, led to a dispute between Descartes and Regius, on the topic of the soul.[14] What was in question in this case was no longer a debate between the new philosophy and Scholastic philosophy, but rather a debate within the new philosophy—a debate between an interpretation that sought to extend to the human soul the same nominalizing razor that had been applied to occult qualities and substantial forms in physics (Regius’s position), and another interpretation (that of Descartes) anchored in the *Metaphysical Meditations* that wants to make an exception

for the soul. Today one might call this intra-Cartesian combat as being between empiricism and dualism.

Transferred to such a polemical context, the considerations of the Letter-Preface to the *Principles of Philosophy* on the political utility of philosophy can no longer appear as abstractly eirenic.[15] On the contrary, “true” philosophy is defined therein by its capacity to surpass the “barbarity” and “savagery” that characterize a state infiltrated by false philosophers:

> It is this philosophy alone which distinguishes us from the most savage and barbarous peoples; and a nation’s civilization and refinement depends on the superiority of the philosophy which is practised there. Hence the greatest good that a state can enjoy is to possess true philosophers. (AT IXB. 2–3/CSM I.180)

Cartesian philosophy now appears political however you look at it: from the point of view of its controversial birth, with regard to its theses, but also from the perspective of its principal proponents and opponents. This political dimension is embodied in those who confront each other in the name of truth amidst a heated battle for recognition and glory. It is a deeply passionate battle.

In his correspondence with Elisabeth, Descartes analyzes the distinction among those who are, by nature, governors and governed, using the language of “humors” that the *Discourse on Method* deplores.[16]

(p. 244) Concerning, first of all, the humors of “humans of the lowest condition”, the “devout crowd”, the “people who are led”, the “multitude” or the “populace”: In the *Treatise on Man* (AT XI.166–7), these characters are defined by means of four principal differences among the animal spirits that, as they combine, produce an indefinite variety of what Descartes calls “natural inclinations”. They thus have a purely somatic significance, which Descartes at the same time distinguishes from another corporeal parameter—the constitution of the brain—and from particular affections of the soul alone, the emotions. In addition, the humors dispose or incline us to certain passions without themselves being passions. In order for them to be transformed into passions, the soul must lend them its assent.[17]

When Descartes privileges talk of humors to characterize human beings in certain particular collective situations of dependence, it is thus to highlight that they behave more like a mass than like a collection of free individuals, more like animals than like rational beings, more like barbarians or savages than like “true” philosophers. To this physiological dimension of the theory of humors, which anchors them in a certain naturalness, must be added another, one that is proper to the passions. Descartes constantly links the passions to the course of the animal spirits in the nerve of the sixth pair, which specifies them with relation to other senses. Thus, in virtue of a natural institution whose effects we can observe but whose reasons we cannot understand, this nerve also has the function of exteriorizing, on the face of someone who is susceptible to it, the passion that animates him. This air or these manners thus produce, among those who observe them, a compassion-

ate phenomenon, which Descartes does not fail to thematize—for example, in the fourth section of the Letter to Voetius, or, with respect to the theologian Revius, in the letter to Elisabeth of 10 May 1647:

> I know that what these people revere in theologians is not their honesty and virtue so much as their distinguished beards and sonorous voices and grave expressions. Here, as in all democratic states, those who complain the loudest when they are insulted have the greatest power, even if they have the least reason for their complaints. (AT V.17/CSMK 318)

Thus, a true human being who is standing out in a crowd of others must engage in a decentering of the self, a kind of deflecting of his own defects through the imaginary creation of defects in others. The pious need to hate vice is, at one and the same time, satisfied and projected onto those people that one is ordinarily most driven to envy (especially the “true philosophers”) without, however, being authorized to express it. The authority attributed to the preacher only sustains the illusory esteem that is granted him; and this illusory esteem reinforces the preacher in his self-love, in his wickedness, and in his presumption.[18] The preacher provides an example of political power at once (p. 245) efficacious and perverted, concerned to exploit the humors of the parts of the whole considered *en masse* in order to enhance his own place in this whole, with the consent of the other parts.

How does Descartes envisage the “good” prince—that is, the prince who is both capable of governing “well” and governing for real?

The good prince is someone who shows himself capable of determining just how far reason commands him to be interested in the public cause, but without seeking in this domain an impossible exactitude (Letter to Elisabeth, 6 October 1645, AT IV.308–9/CSMK 269), and thus capable of confering—upon himself and upon others, understood as parts of a whole—a place and an importance differentiated according to each one’s value. Unlike the vulgar preacher, the problem confronting the prince concerned with justice is not to know how he can elevate himself above the other parts of this whole, or how he can make it so that no part is truly distinguished from another, but rather to know how he must proceed so as not to forget himself in this whole and to allow everyone, individually, to join it.

At this empirical level, he seems most often to be somewhere between the “naturally modest person” who “torments himself for the sake of the other” (Elisabeth to Descartes, 13 September 1645 and 30 September 1645, AT IV.288–90 and 301–4/S 109–111) and the properly generous person whose self-esteem, ideally, is as high as it can legitimately be (*Passions of the Soul*, 152, AT XI.445/CSM I.384), who knows how to sympathize with those who are afflicted, and who “has a good will toward each”, but, for all that, without being afflicted with the ills that inconstant people suffer (*Passions of the Soul*, 187, AT XI. 469–70/CSM I.395).

As Descartes reminds Elisabeth several times, the person who governs also embodies a temperament that does not have the constancy of the generous soul. The melancholy that the princess is suffering from is characterized by an excess of black bile over the other humors composing the blood (pure blood, lymph, and yellow bile). Thus, one of the effects of this excess of black bile is to render the soul much more sensitive to evils and external suffering. Elisabeth has thus come to sympathize with the sufferings of others so much that she increases its evil effects and incurs the risk of dying from it.[19]

Even if the reasons are quite different from those that prevail for the preacher and the devout crowd, what Elisabeth needs is still a matter of refocusing herself and controlling what may and may not enter the “interior” of her soul. This delimitation proceeds from an increased concern about her melacholic “humor”, “character” or “temperament”, since it is accompaned by such physiological manifestations that her ability to think and to govern are endangered. Lest she disappear into the whole or for real, Elisabeth must work to “do justice to herself” and to maintain a certain constancy in her soul, which is an absolute condition for the exercise of a maximal freedom of judgment.

However, on the other hand, someone who governs has

(p. 246)

> rarely … to do with people who are as perfectly reasonable as everyone ought to be, so that one can judge what they will do simply by considering what they ought to do; and often the soundest advice is not the most successful. (Letter to Elisabeth, May 1646, AT IV.412/CSMK 288)

It thus happens, unfortunately, that people of sufficiently mediocre (in the sense of “median”) humor achieve their goals better than more generous individuals, because they also have a facility for understanding and anticipating the behavior of most other people than does someone with a greater and better intentioned soul. In practice, governing well equally requires that one “know in detail the humor of all those with whom one must have dealings” (Letter to Elisabeth, 3 November 1645, AT IV.334/CSMK 278) in order to be able to adapt one’s decisions to those who fall under them, let alone having to make very unreasonable choices for the sake of a greater good.

The problem, then, is the following: how to bring it about that people find it in their interest to unite together within a whole without this degenerating into a perpetual clash of parts, each more concerned than others to secure the best position, or at least not to occupy the lowest place.

3. A Realist Politics

It is necessary, first of all, for human beings to take on the necessary and difficult task of decentering themselves in order to associate themselves with a whole, or with the main part of it, by adopting its ends as their own. In Descartes’s anthropology, it is the passion of love that assumes this function. For in this voluntary assocation, “we imagine a whole,

of which we take ourselves to be only one part, and the thing loved to be the other” (*Passions of the Soul*, 80, AT XI.387/CSM I.356). The most perfect example of this kind of love is that of a parent for his children:

> He regards them, rather, as other part of himself, and seeks their good as he does his own, or even more assiduously. For he imagines that he and they together form a whole of which he is not the better part, and so he often puts their interests before his own and is not afraid of sacrificing himself in order to save them. (*Passions of the Soul*, 82, AT XI.389/CSM I.357)

When love is true and aims at “perfection”, the subject is capable not only of recognizing differences among the parts that compose the whole that it forms with the thing loved, but also of considering himself as a minimal, that is, least important part of the whole in question. Everything proceeds as if love of self and love of the parts must be self-regulating within a whole with which each part more or less spontaneously associates because it knows that therein lies its interests. Finally, a behavior that is a little less prudent will always serve the common cause: “Insofar as each person rlates everything to himself, he (p. 247) will also work for others if he is served by prudence” (Elisabeth to Descartes, 28 October 1645, AT IV.324/S 124). Reciprocally,

> those who do nothing that is not for their particular utility ought also, just as much as others, to work for others and to try to bring pleasure to each, as much as is in their power, if they want to be prudent. (Letter to Elisabeth, January 1646, AT IV.356/S 132)

But how is everyone to be persuaded?

Descartes is committed to resolving this question in the letters to Elisabeth, and he does so by focusing not on divine providence, but on a fully human definition of prudence.

This conjunction of self-concern and decentering toward the other is thus to be distinguished from the “pure affection for others which has no reference to oneself, that is, from the Christian virtue called charity” (Letter to Elisabeth, 6 October 1645, AT IV.309/CSMK 269–70). For here it is a matter of defining “doing well” in a way that cannot be understood “in terms of theology, where the subject is grace, but only in moral and natural philosophy, where this grace is never considered” (Letter to Mersenne, 27 April 1637, AT I.336). While a society of charitable individuals would be perfect at the level of parts, this, once again, belongs to the realm of fiction, whereas we are concerned with the eventual perfection of a whole composed of imperfect parts. Descartes starts with this simple fact: however perfect it may be, no morality can be useful to human beings—that is, both demanding and practical—if it does not know how to make itself attractive to them, if it does not offer means for facilitating its usage:

> Thus we cannot ever practice any virtue—that is to say, do what our reason tells us we should do—without receiving satisfaction and pleasure from so doing. (Letter to Elisabeth, 1 September 1645, AT IV.284/CSMK 263)

One who desires to establish civil peace must therefore seek the means for instilling in everyone the desire to act well toward others. And this proceeds by illuminating the individual interest that each person has in behaving charitably within society. What, then, does this prudence grounded in self-interested charity consist in?

In the letter of January 1646, Descartes explains that what nourishes the desire to live in peace in a state and to conform to its laws is the possibility, offered by civil laws, of living therein without the other doing us any wrong. But above all, a quick calculation allows us to understand that this union with others increases our own particular goods themselves, through the enjoyment of the common good. At the end of this letter, Descartes explains that “working on behalf of the other, and trying to please everyone” serves one’s own cause. The great power of the rule of prudence defined here resides in its rootedness in experience. If is it also imperative, as much for the most self-interested and least sociable of human beings as for the best human beings, “to work for the other and to try to please everyone”, it is because

(p. 248)

> one commonly sees that those who are deemed officious and prompt in bringing pleasure also receive a number of good favors from others, even from those who do not owe them anything. They would not have received these favors had they been thought by others to be of some other humor, and the pains they take in bringing pleasure are not as great as the conveniences afforded by their friendships. (Letter to Elisabeth, January 1646, AT IV.356/S 132)

Descartes minimizes the efforts that are required to obtain the great satisfaction of others and maximizes the self-interested consequences of the least efforts deployed by others for our sake: “It often happens that what costs little (to the other) brings us great profit, and can even serve us our whole life” (AT IV.356). Even when one gives full weight to the objection that one sacrifices a great deal in acting well, while on the contrary one stands to gain by acting badly, “this does not change the rule of prudence, which concerns only things that happen most often” (AT IV.356).

In grounding this rule in experience, Descartes intends to make prudence desirable to the most calculating of human beings. The argument ends by revealing the instrinsic contradiction of the attitude of someone who wants to pursue his own interest by flouting the common good. In the end, it is he himself who alone will be penalized. It is not so much a matter of creating in human beings the desire to be virtuous but one of removing the desire to be wicked, by putting it in its proper place:

> The common laws of society, which all tend to make people treat each other well, or at least not to do any ill to each other, are, it seems to me, so well established that whoever follows them honestly, without any dissimulation or artifice, leads a much happier and more assured life than those who seek their own utility by other routes, though, in truth, they succeed sometimes through the ignorance of other men and by the favor of fortune. But it happens much more often that they fail and

> that in thinking to establish themselves, they ruin themselves. (Letter to Elisabeth, January 1646, AT IV.357/S 132)

Princes who govern generally have a problem that is the inverse of Elisabeth’s: they seem more like skilled preachers than like authentically generous individuals. Thus, it is necessary to motivate them, too, to do well for their subjects, by showing them how such a preoccupation serves their own particular interest and their position, which is in fact a privileged one, within the whole that they compose with everyone else.

Recall two of Descartes’s arguments. First, there is the idea that experience itself favors Descartes over Machiavelli, or better, over what follows from what Machiavelli sometimes maintains—for example, in chapter 19 of *The Prince*. Descartes shows that the historical examples invoked in that work go against what Machiavelli claims everywhere else. In this chapter he says that it is better to be feared than loved; but he also claims that the cruelest principles cannot protect a ruler from someone who would risk his life to take revenge. The Roman emperor Antonio was feared by everyone, and yet, Descartes recalls, he was killed. Thus:

(p. 249)

> It is a sorry thing to make a book full of maxims which ultimetely cannot even give any security to those to whom they are offered. He agrees himself that princes cannot protect themselves from the first fellow who is willing to risk his own life to take revenge on them. (Letter to Elisabeth, September 1646, AT IV.487/CSMK 292)

The prince must therefore keep his word to his allies, even when it is at first prejudicial to himself. For this initial loss is largely compensated for by the reputation for being a man of his word with whom one can form alliances with full confidence. If the prince’s loyalty is required, it is from the perspective of political efficacy. It is always in the name of efficacy that Descartes opposes Machiavelli.[20]

One thus ought to be cautious when dealing with the thesis that Descartes is opposed to the Machiavellian idea of the wickedness of human nature. Not that Descartes positively embraces this thesis. Rather, his argumentation is rooted in it, but precisely in order to confront his adversary on his own turf.

One of the interpretative keys to these texts is furnished by the letter to Father ••• from 1643. In this letter, Descartes conveys his first impressions upon reading Hobbes’s *De Cive*:

> All I can say about the book *De Cive* is that I believe its author to be the person who wrote the Third Objections against my *Meditations*, and that I find him much more astute in moral philosophy than in metaphysics or physics. Not that I could approve in any way his principles or his maxims. They are extremely bad and quite dangerous in that he supposes all persons to be wicked, or gives them cause to be so. His whole aim is to write in favour of the monarchy; but one could do this more

> effectively and soundly by adopting maxims which are more virtuous and solid. (AT IV.67/CSMK 230)

When Descartes turns to illuminating how being virtuous serves the interest of the wicked person himself, he does not intend to discuss the thesis that human beings are by nature wicked (a point on which Machiavelli is close to Hobbes). He wants, above all, to remove from everyone the desire to be wicked. For Descartes, it is a matter of appropriating the argumentative strategy of his adversary in order to restore more acceptable principles, following the empirical path itself with the same goal of working for peace, or avoiding sedition.

For Hobbes, all societies are built on the foundation of glory and the commodities of life. They must work against self-love, which counterbalances any inclination we might have for those like ourselves (*De Cive* I.2). This form of extreme egoism is particularly manifest when Hobbes turns to the way in which we can put ourselves in the place of the other. In several passages, he explains that this is possible through a kind of similitude … between passions and thoughts. Each person, as he finds himself reasoning (p. 250) or experiencing passions, can hope or fear what the other person feels. Imagining oneself in the same situation as the other generates pity or compassion, or fellow-feeling. It is thus not in virtue of a natural aspriation for the good that one has no, or very little, pity for the misery of the wicked. It is because one does not dissociate what is happening to them from their propensity to harm us. Inversely, the more one feels concerned with what happens to another person, the closer his condition is to one’s own, the stronger is the pity.

Let us turn now to charity. If the sovereign is interested in demonstrating charity towards his subjects, this is not because of any love of his fellow human beings. Rather, it is because infirm and indigent subjects, left on their own, quickly become a menace to civil peace, as well as to the sovereign himself. As soon as backs are turned, human beings will show themselves in general to be “without charity” to their fellows. For Hobbes, passions that may indicate an authentic interest for the other are, above all, really about ourselves in the situation of the other. In the Hobbesian version of the social contract, we fulfill our obligations not because their violation would bring harm to the other, but because the harm brought to the other might be transformed and turned back against ourselves.

Despite these manifest differences between Descartes and Hobbes, it seems as though the political philosophy of the Englishman furnished Descartes with an opportune interpretative template for the most frequent motivations and behaviors of “true” or “real” human beings. It is because, as a matter of fact, personal interest governs their decisions and makes them privilege themselves over others that it is necessary to show them that their own personal interest lies in uniting with others and serving this whole.

But why does a love that is intrinsically good degenerate in this way into a logic of esteem that vitiates every just appreciation of the value of human beings? We need to begin by describing the characteristics of the passion of self-judgment in order to then try to understand its potential right usage.

4. The Politics of Esteem and Generosity

Articles 157 and 159 of the *Passions of the Soul* distinguish different forms of pride and vicious humility according to the injustice of the reasons on account of which one esteems or despises oneself.[21] In both cases, the other is considered as a means of procuring for myself a good that I cannot do without: flattery, for those who confuse usurped glory with authentic merit; or even money, for someone who pretends not to have the full use of his free will in order to legitimize his outrageous behavior. In determining love, esteem thus creates a dependence upon others. It transforms the other person into a means that one has every reason to debase as part of whole that one (p. 251) composes with him. It is all a matter of reputation. This is why, for example, “our most ignorant doctors” often pass as the most wise:

> First, among the people there is always a prejudice in favor of someone who the magistrate, or some other prepossessing person, chooses to instruct others. Then, among all those who have been so chosen, it is impossible for the multitude not to regard as the most wise the orator who speaks with the most confidence, who pretends to know the most, whom his colleagues praise most often and most willingly: three conditions that are almost always found in our ignorant doctors. In effect, since they are guided not by reason but only by authority, whatever the find in authors whom they have taken as their guides is, for them, a certain and demonstrated thing, and they repeat it with assurance. In the second place, not knowing what a scholar can ignore without dishonor, and persuaded that the universal science is enclosed in books, they want to appear to know everything. Finally, praising only themselves and their equals, they are praised in turn; and they are also sometimes praised by men of talent who, jealous of another, more educated person, hope to diminish his reputation by giving him preference and lavishing excessive praise upon him. They thus find themselves honored with the title of ‘scholar’, at first by the vulgar alone, then, little by little, by more educated people who, not knowing them directly, go by what is said about them.
>
> (Letter to Voetius, Verbeek 1988: 352–3)

So self-esteem implies that the only criterion of what is just or unjust is simply the value that one accords oneself, and any contempt shown for the value that one believes oneself to possess is interpreted as a debasement of one’s being, that is, an injustice.

To the extent that it perverts any sentiment of justice, unjust self-esteem is a very dangerous passion for the conservation of human society. The prince must thus take this anthropological fact into consideration in order to instill in his subjects a sentiment or preference for justice, which will extinguish their polemical desires. The prince must not only work to guard against hate or to make himself admired by his subjects. He must, above all, strive to be justly esteemed in his own proper functions, including the honors and deference that he expects to be granted. He must, in other words, take care, above all, of his reputation for justice and constancy. In the letter to Voetius, Descartes highlights this

with respect to another group—teachers: the “greatest geniuses” that are found must display “a prudent recklessness” and avoid “appearing superior to their colleagues”; this is the only way to avoid their jealousy and hatred (Verbeek 1988: 352–3). The continuation of the letter to Elisabeth of September 1646 shows as well that

> the common people will put up with whatever they can be persuaded as just, and they are offended by whatever they imagine to be unjust. The arrogance of princes —that is, the usurpation of some authority or rights or honours thought undue—is odious to the common people only because it is regarded as a kind of injustice. (AT IV.491/CSMK.295)

The only obstacle to the will of the prince seems to be what the people imagine or believe to be unjust. But it would be good to be even more precise here. For Descartes links (p. 252) two ways of being persuaded of justice: that of the prince, who has the greatest chance of acting justly when he thinks that his action is just, and that of his subjects, who believe the prince to be just as long as the prince is himself just in his intentions. Symmetrically, the most just actions become unjust when those who perform them think them unjust.

Being persuaded about something’s or someone’s justice does not in itself constitute a criterion of justice. But Descartes does clearly affirm two things: first, it is when the prince considers himself just that he has the best chance of actually being just; and second, it is when he is considered just by his subjects that the latter are the most inlined to serve the whole—that is, to renounce their own interest.

To conclude, we need to return to the passion-virtue of generosity,[22] in order to highlight four dimensions that are essential for understanding the Cartesian position. First, generosity consists in a persuasion, which is here a kind of knowledge, of the fact that nothing more properly belongs to us than the free disposition of our volitions, and that consequently this free disposition is the only just criterion of esteem or blame at our disposal. In “true human beings”—here understood to mean human beings who have knowledge of what makes them human relative to all other beings (including barbarians)—this knowledge restores to esteem its correct usage. It grounds just actions.

Second, however, it is worth distinguishing between actions that are always just in their effects and the resolution, characteristic of the generous soul, to comport oneself in a just manner in all of life’s situations. Generosity is neither a result nor a simple intention, but a persisting intention that can be put to the test in every new situation and that, for just this reason, is a habit.

Third, if this virtue is a passion, and even the key to the good use of all the passions, it is because it is always embodied in a concrete person, someone who, for example, as in the case of Elisabeth, may be melancholy. The constant resolution to use one’s free will well among “true human beings” sustains itself through other types of knowledge, such as that which consists in being one’s own physician, or even better, in domesticating the passions that, like jealousy (*Passions of the Soul*, Arts. 167–9, AT XI.457–8/CSM I.389–90),

can vitiate a just self-esteem and esteem of others. In this way, generosity represents an authentic daily requirement, one that, absolutely speaking, remains accessible to every human being precisely in so far as he is a human being and not a simple machine or disembodied soul.

Finally, generosity allows for a definition of a kind of charity that is different both from that of the “world of novels” and from that of a world like Hobbes’s. What characterizes the generous soul, in so far as it is passionate, is that it sometimes experiences even stronger passions than the common folk. This is what the capacity of the generous person to sympathize in the strong sense—that is, to feel the afflictions and the joys of those who are like him—consists in. However, as Descartes writes several times to Elisabeth, the generous person sympathizes only in a superficial way. In Spinozist terms, one would say that his power of acting and of reflecting is not diminished by the eventual diminution of those powers in those who resemble him. This situational knowledge (p. 253) of true human beings, and the constancy of their capacity for judgment, allows generous people “to render to each person that which belongs to him … according to his position and authority in the world” (*Passions of the Soul*, 164, AT XI.456/CSM I.389), that is, to articulate as much as possible the different facets of esteem. Generosity, in these different senses, is certainly Cartesianism’s political passion and virtue.

5. Rereading Descartes: A Requirement to Think Contemporary Democracies?

If it seemed that a treatment of the political was “missing” in Descartes, it is not only because it took a long time to read beyond the *Discourse on Method* and the *Metaphysical Meditations* and take advantage of the correspondence, the polemical and physiological texts, and even the *Passions of the Soul*. It is also because it was difficult to see how his consideration of the capacity of the human will or freedom to be an absolute beginning could be discussed within developments that relate to Machiavelli or Hobbes. An embodied or embedded Cartesian self—in brief, a politicized Cartesian self—became difficult to reconcile with a *cogito* typically seen as disembodied and alone in the world.

When one tries to link these different dimensions of Descartes’s reflections, there results, on the contrary, a system that is, in terms of politics, much richer. For the “true human being” is subject, at one and the same time, to multiple somatic and social dimensions, and he is potentially always susceptible to avoiding, or at least not acquiescing to, them.

When one tries to articulate this interpretation of generosity and a mechanistic anthropology beside a political philosophy like Hobbes’s, without putting them in opposition, what we end up with is a moral anthropology. Politics thus becomes that delicate art of creating a composition with the different ways in which true human beings esteem each other and try to live together in a better—or at least not worse—possible way.

Translated by Steven Nadler

References

Antoine-Mahut, Delphine (2018), *L’autorité d’un canon philosophique. Le cas Descartes*. Paris: Vrin.

Ariew, Roger (2014), *Descartes and the First Cartesians*. Oxford: Oxford University Press.

Azouvi, François (2002), *Descartes et la France: Histoire d’une passion nationale*. Paris: Fayard.

Balibar, Etienne (2011), *Citoyen sujet et autres essais d’anthropologie philosophique*. Paris: Presses Universitaires de France.

Beyssade, Jean-Marie (1997), “Descartes politique?”, in Miklos Vetö and Philippe Soual (eds.), *Chemins de Descartes*. Paris: L’Harmattan, 121–34.

(p. 254) Canziani, Guido (1999), “La politica nelle lettere di Descartes a Elisabetta, Chanut e Brasset”, in Jean-Robert Armogathe, Giulia Belgioioso, and C. Vint (eds.), *La Biografia Intellettuale di Descartes attraverso la Correspondance*. Naples: Vivarium, 493–526.

Canziani, Guido (2015), “Entre Descartes et Hobbes: la morale dans le *Système de philosophie* de Pierre-Sylvain Régis”, in Pierre-Sylvain Régis, *La morale ou les devoirs de l’homme raisonnable, de l’homme civil et de l’homme chrestien* [originally published 1682], ed. Sylvain Matton. Paris: Séha/Milan: Archè, 59–136.

Capdevila, Nestor (2013), “Descartes et la démocratie selon Tocqueville”, in Delphine Kolesnik-Antoine (Antoine-Mahut) (ed.), *Qu’est-ce qu’être cartésien?* Lyon: ENS Editions, 485–502.

Ferrari, Joseph (1983), *Les philosophes salariés*. Paris: Payot.

Guenancia, Pierre (1983/2nd edn. 2012), *Descartes et l’ordre politique*. Paris: Gallimard.

Guenancia, Pierre (2002), “Dieu, le Roi et les sujets”, in Pierre Guenancia (ed.), *Lire Descartes*. Paris: Gallimard-Folio, 388–419.

Guenancia, Pierre (2010), “Descartes contre Machiavel”, in Pierre Guenancia (ed.), *Descartes, chemin faisant*. Paris: Encre Marine, 213–28.

Friedrich A. Hayek, (2007), “Des sortes de rationalisme”, in *Essais de philosophie, de science politique et d’économie*. Paris: Belles Lettres, 139–57 [first published as *Studies in Philosophy, Politics and Economics* by Routledge and Kegan, 1967].

Hebert, L. Joseph (2007), “Individualism and Intellectual Liberty in Tocqueville and Descartes”, *Journal of Politics* 69: 525–37.

Kambouchner, Denis (2008), “Une politique des passions”, in Denis Kambouchner, *Descartes et la philosophie morale*. Paris: Hermann, 241–3.

Kambouchner, Denis (2015), “L’horizon politique”, in Frédéric de Buzon, Denis Kambouchner, and Elodie Cassan (eds.), *Lectures de Descartes*. Paris: Ellipses, 385–412.

Kolesnik-Antoine (Antoine-Mahut), Delphine (2011), *Descartes: Une politique des passions*. Paris: Presses Universitaires de France.

Negri, Antonio (2006), *Political Descartes: Reason, Ideology and the Bourgeois Project*, trans. and introduced by Matteo Mandarini and Alberto Toscano. London and New York: Verso.

Quillien, Philippe-Jean (1994), *Dictionnaire politique de René Descartes*. Lille: Presses Universitaires de Lille.

Richir, Marc (1997), “Doute hyperbolique et ‘machiavélisme’: l’institution du sujet moderne chez Descartes”, *Archives de philosophie* 60: 109–22.

Schiebinger, Londa (1989), *The Mind has no Sex: Women in the Origin of Modern Science*. Harvard: Harvard University Press.

Shaw, Devin Zane (2012), “Cartesian Egalitarianism. From Poullain de la Barre to Ranciere”, *Phaenex* 7: 101–29.

Shaw, Devin Zane (2017), *Egalitarian Moments from Descartes to Ranciere*. London: Bloomsbury.

Taylor, Quentin (2001), “Descartes’ Paradoxical Politics”, *Humanitas* 14: 76–103.

Verbeek, Theo (1988), *La Querelle d’Utrecht*. Paris: Les Impressions nouvelles.

Verbeek, Theo (1990), “Le contexte néerlandais de la politique cartésienne”, *Archives de Philosophie* 53: 357–70.

Verbeek, Theo (1992), *Descartes and the Dutch: Early Reactions to Cartesian Philosophy 1637–1650*. Carbondale and Edswardsville: Southern Illinois University Press.

Wolin, Sheldom (2001), *Tocqueville Between Two Worlds: The Making of a Political and Theoretical Life*. Princeton and Oxford: Princeton University Press.

Notes:

([1]) On Régis and politics, see the very thorough study of Canziani 2015 (59–136). On the opposition of Hobbes and Descartes on metaphysical questions, see Chapter 38 in this Handbook.

([2]) In his 1849 pamphlet titled *Les philosophes salariés* (especially chapter IV: “la méthode de l’éclectisme”), Giuseppe Ferrari (1811–76) shows how Victor Cousin (1792–1867) used references to Descartes to institutionalize a philosophy of the state promoting the

values of liberalism and blocking the revolutionary potential of doubt. For a critical edition of this text, see Ferrari 1983.

([3]) For references other than those given here, and an excellent philosophical history of Cartesian ideas, see Azouvi 2002.

([4]) Especially in the works and teaching of Louis Althusser (1918–90). For the decisive complements and nuances of Althusserian thought itself, especially concerning the Cartesian ‘subject’, see Balibar 2011.

([5]) Negri 2006.

([6]) Hayek 2007.

([7]) On De Tocqueville and Descartes, see Wolin 2001; Hebert 2007, and Capdevila 2013.

([8]) Shaw 2012 and 2017. In light of the contrasting political receptions of Descartes, especially in the eighteenth century, Quentin Taylor ends up qualifying the politics of Descartes himself as “paradoxical”; see Taylor 2001.

([9]) See, for example, Schiebinger 1989.

([10]) These texts are collected and presented in Verbeek 1988. On the Dutch context of Cartesian politics, see Verbeek 1990 and 1992.

([11]) For a collection of principal texts dealing with political questions in Descartes, see Canziani, 1999.

([12]) Letter to Constantijn Huygens, 26 April 1642, AT III.783–4.

([13]) On this point, see Ariew 2014.

([14]) On the importance of the polemical relationship between Descartes and Regius for the constitution of the Cartesian canon, see Antoine-Mahut 2018.

([15]) On the Cartesian philosophy’s ambition to promote peace and philosophy as a “political force”, see Kambouchner 2015.

([16]) “I cannot by any means approve of those meddlesome and restless characters [*humeurs*] who, called neither by birth nor by fortune to the management of public affairs, are yet forever thinking up some new reform” (AT VI.14–15/CSM I.118).

([17]) On this point, see the study of the fourth section of the Letter to Voetius in Kambouchner 2008: 241–3.

([18]) For a very stimulating analogy between the false physics of the Scholastics, who project onto bodies qualities that belong only to the soul, and the most frequent relations between individuals in society, see Beyssade 1997. For a more systematic deployment of this analogy and its consequences, see Kolesnik-Antoine (Antoine-Mahut) 2011.

([19]) This is the meaning of Descartes’s first diagnosis in the letter of 18 May 1645 (AT IV. 201).

([20]) On the case of Cesar Borgia, see Quillien, 1994: 84. On the complex relations between Descartes and Machiavelli, see Richir 1997; Guenancia 2002 and 2010; and Kambouchner 2015: 392–404.

([21]) On the game between love and esteem, see Kolesnik-Antoine (Antoine-Mahut) 2011: 55–82.

([22]) On the crucial importance of generosity in Cartesian politics, see Guenancia 1983/ 2012.

Delphine Antoine-Mahut

Delphine Antoine-Mahut is Professor of Philosophy at the ENS Lyon, France. Her research focuses on early modern philosophy, especially on the relations between metaphysics and physiology; on the historiography of early modern philosophy, in order to highlight the genesis of our current representations of modernity ; and on the various receptions of cartesianism, particularly on the crossed genesis of an official spiritualist model and an unofficial empiricist one.

The *Compendium Musicae* and Descartes's Aesthetics

Frédéric de Buzon

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Abstract and Keywords

There is no more systematically organized set of reflections regarding a specific art form than those that appear in a brief treatise offered to Isaac Beeckman on the New Year of 1619 and published shortly after its author's death in 1650—namely, Descartes's *Compendium Musicae*. Well before their meeting in the fall of 1618, Beeckman was hoping to advance musical theory by updating the experiments and the physical hypotheses concerning the nature of sonic phenomena, and especially consonance, which he did by making a significant contribution to the theory of vibrating strings. In this way, he incited Descartes to pursue experiments and formulate hypotheses that come together systematically in the *Compendium Musicae*. It makes sense, then, to approach the more general question of the relationship between Descartes and artistic and aesthetic questions by beginning with the theory of music in the *Compendium Musicae*.

Keywords: music, art, harmonics, sound, aesthetics

(p. 255) FOR Descartes, questions about aesthetics do not figure among the most important in philosophy. Still, they are not negligible, and they are based on arguments that constitute the fundamental elements of his philosophical activity, such as his theory of sense perception and of the passions, his mathematics, and his physics, extending more generally to what belongs to the cultivation of the mind and civility. His correspondence reveals analyses and remarks that can count as pertaining to philosophical aesthetics, even though, aside from musical topics, Descartes never gave these reflections any systematic attention, and thus there is no such thing as "Descartes's aesthetics" as a complete or even projected doctrine.

Moreover, the theory of music really belongs to the scientific domain, given the relative lack of distinction between the objective study of sonic phenomena (which, in the eighteenth century, becomes the field of acoustics) and music understood as art. In this way Descartes was questioned a number of times by Mersenne between 1629 and 1634 about the possibility of a relation between the elements of musical composition and the pas-

sions, regarding problems related to sensuous pleasure. Also, in 1640, he participated in a musical debate organized by Mersenne that set a French composer, Antoine Boësset, against an amateur Dutch musician and theoretician, Jan-Albert Ban, regarding the setting of a poem to music. The solicitations by Mersenne, who was the most important French theoretician of music in the Classic Age, are a key factor for these Cartesian remarks. Likewise, in the letters to Elisabeth, a number of Descartes's remarks are related to aesthetics, taken in a broad sense.

Nonetheless, there is no more systematically organized set of reflections regarding a specific art form than those that appear in a brief treatise offered to Isaac Beeckman on (p. 256) the New Year of 1619 and published shortly after its author's death in 1650—namely, Descartes's *Compendium Musicae* (*CM*).[1] Well before their meeting in the fall of 1618, Beeckman was hoping to advance musical theory by updating the experiments and the physical hypotheses concerning the nature of sonic phenomena, and especially consonance, which he did by making a significant contribution to the theory of vibrating strings. In this way, he incited Descartes to pursue experiments and formulate hypotheses that come together systematically in the *CM*.[2] It makes sense, then, to approach the more general question of the relationship between Descartes and artistic and aesthetic questions by beginning with the theory of music in the *CM*.

1. The *Compendium Musicae*

Descartes's first complete work, the *CM* is a treatise on music theory whose purpose is to define the properties of sounds to be used in a composition. The opening of the treatise defines two purposes of music, namely "*delectare variosque in nobis movere affectus* [to delight and to incite various affects in us]" (AT X.89). We see in this definition two of the classic ends assigned to rhetoric, bringing the Cartesian definition in line with other contemporary definitions of music, such as that of Giulio Caccini (Caccini 1601: 4). Despite this alignment, however, what Descartes mainly focuses on in his analysis of music is very far from contemporary approaches grounded on the direct relation between a text and its musical setting (which includes "*docere* [teaching]" and thus completes the conception of a musical rhetoric). In effect, the only approach to sound that Descartes envisages derives from the mathematics and physics of resonance, adapted to properties relevant for psychology. Descartes identifies two affections (*affectiones*) of sound that can be measured, distinguished by duration or time and by pitch. These affections are treated as two true dimensions, in a sense that Descartes will explain in the *Rules for the Direction of the Mind* (Rule XIV, AT X.447/CSM I.62). Descartes does not fail to note that certain qualitative properties of sound related to the materiality or singularity of the instrument (such as the timbre of voice or that of an artificial instrument) are equally capable, by themselves, of procuring pleasure. (He highlights the pleasure brought by the voice of a friend). But these elements, a matter only of qualitative and descriptive physics, are not analyzed in this treatise. This work belongs to the range of studies to which Descartes was devoted while in Beeckman's company and which the latter called "physico-mathematical", where the concern was with giving demonstrative form to reflections about

physical objects of which only certain, directly measurable qualities are examined according to their capacity to please or irritate.

(p. 257) The elements composing the *CM* are connected according to a strict order that differs in certain ways from the traditional order of treatises. Some preliminary notes (*Praenotanda*) describe the conditions that a sensible object must meet to be intelligible and to generate a certain pleasure. These precepts are set out on the two dimensions retained in the analysis: first there is time; then pitch, upwards and downwards. The study of this latter dimension is the most contextualized. It is all about consonances, degrees, and finally dissonances. Descartes here reconstructs the classic harmonic universe, taking his start from "sonorous numbers", that is, 2, 3, and 5 (AT X.105), as well as from their multiples. These elements, which correspond approximately to the theoretical part of a treatise on music, are followed by a brief practical part dealing with how to compose, and then with modes of composition. This technical side of the treatise should not be surprising, even though it is brief and its author undoubtedly did not practice the art that he is talking about except in a rudimentary manner: musical theory was one of the constitutive elements of classic *mathesis*, ever since the classification of the mathematical sciences bequeathed by antiquity and the Middle Ages.

2. The *Praenotanda*

In eight preliminary propositions, Descartes successively presents the idea that (1) "Each sense is capable of some delight" (AT X.91) and points out the conditions that make this possible, namely (2) a proportion between the object and the sense itself, which rules out the object being too difficult to grasp (3); the lesser the distinction among the parts of the object of the sense, the better it is perceived (4); the greater the proportion among the parts, the lesser is their distinction (5); and this proportion must be arithmetic and not geometric, since geometric proportion introduces irrational quantities that are hard to identify sensibly (6).

However, the import of these six first propositions is tempered by the two final ones. Descartes indicates that:

> (7) Among the objects of sense, the most gratifying to the mind is not that which is most easily perceived by a sense; neither is it that which is apprehended with the most difficulty. Rather, it is that which is perceived not so easily that it satiates the natural desire by which the senses are carried toward their objects, nor with so much difficulty that it fatigues the sense.
>
> (8) Finally, it should be noted that variety in all things is the most gratifying (AT X. 92).

These *Praenotanda* in the *CM* are sometimes regarded as expressing the principles of a Cartesian aesthetics.[3] The probable source for the argumentation goes back to Aristotle's *De anima* (III.2, 426a–427b7), in particular with regard to the notion of proportion in its

application to sense. But the originality of the Cartesian approach consists in associating (p. 258) this demand for proportion (which, in Aristotle, as in the second *Praenotandum*, means only that the sensible must be neither too big nor too small, otherwise it would either harm the organ or be imperceptible) with a division of the object into equal parts, or at least parts reducible to whole numbers, thereby excluding any irrational relations.

This way of tailoring the objects by reference to sense is true for objects of hearing, but also, as the figure corresponding to the sixth *Praenotandum* shows, objects of vision. Brouncker, an English commentator of 1653, raises the question of the legitimacy of applying visual proportions to audible ones (Descartes 1653: 62). This requirement entails that all measurable musical items—namely, time and pitch—must be organized by divisions in whole numbers. Finally, the seventh and eighth *Praenotanda* introduce, along with the regularity of a division in whole terms, the requirement of variety. This latter is grounded on an expectation by the sense: that the sense must not be too easily satiated, otherwise it would not await or expect anything, but neither must it be too hard to satisfy, which saves it from fatigue. All of this is summed up in the idea of variety, but a variety that consists in a composition of absolutely regular parts. Well after writing the *CM*, Descartes places the greatest importance on this principle, which he refers to, notably, in a letter to Mersenne of December 18, 1629 (AT I.133/CSMK 19–20). It is important to emphasize that this mathematization of the subject is subordinated to a hypothesis about that expectation by sense and is grounded on nothing else. This is confirmed, subsequent to the *Praenotanda*, by a letter to Mersenne on December 18, 1629, in which Descartes articulates, in an original manner, the relation between rational calculation and its sensible constraints: "And when we judge through reason [the goodness of consonances], reason must take into account the capacity of the ear" (AT I.88). The Cartesian recourse to arithmetic proportion allows for the recovery and reuse of classic harmonics, but not in the same way as before. Unlike Zarlino or Kepler, for example, Descartes evokes no mystical or magical property of number, no intrinsic beauty or perfection. From here on, the value of number is limited to the simple fact that it allows for numeration and putting some order into the sensible.

3. Time and Rhythm

Time is the first affection dealt with in the *CM*. Descartes applies to it the principle of division into equal parts, and more precisely into double and triple parts, never exceeding these factors or their multiples. He thereby excludes, for example, a division into five or seven times (except in the case of percussion instruments, where only temporal variety invites attention and imagination). Three things follow from this composition of times. First, Descartes indicates how imagination and memory can recall an entire piece of music through successive temporal syntheses based on the regularity of the composition, so that the chant, at the end, appears as a unity composed of numerous equal parts. Second, the role of the imagination is illustrated by its corporeal effects, such as in dance or, more generally, in the dressage of animals capable of leaping in rhythm if they are (p. 259) trained to do this. Finally, slow or rapid measure can be associated with movements of

the passions (*affectus*). Descartes limits himself to one principled indication of this: a slow measure suits a slow passion, such as languor, sadness, etc.—this shows that Descartes links the effects of passions with corporeal motions, but without giving any further detail—while a rapid measure suits a rapid passion such as joy. But this point is only sketched, and awaits an "exquisite cognition of the motions of the soul" (AT X.95). To this is added the idea that rhythm can, by itself, generate pleasure.

Compared to earlier treatises, Descartes's approach is distinguished by the fact that the question of rhythm and measure is situated within a theoretical and not a practical discussion, and antecedent to a theory of the relations of pitch. Classical treatises, by contrast, consider this question not as if it depends on musical theory understood as a theory of harmony, but as solely a practical matter. What is more, rhythm by itself can provoke pleasure and passion, independent of any difference in pitch, upward or downward. Finally, Descartes links musical rhythm to movements in dance, and not, as a number of earlier treatises do, to ancient metric and prosody. Put another way, the dimension of music that is rhythm dispenses with any textual grounding.

4. Consonance, Degrees, and Dissonance

The second dimension is constituted by differences in pitch, upward or downward. In order to deal with these, Descartes appeals to an ancient principle of musical theory that functions like a constitutive postulate of the mathematical theory of music: "*sonus se habet ad sonum ut nervus ad nervum* [one sound bears the same relation to another sound that one string bears to another string]" (AT X.97). This means that, all other characteristics of a string (thickness, weight, etc.) being equal, the relation of one sound to another is expressed by the length of one string relative to another. This reduction, supplemented by the principle of the arithmetic division of sonorous objects, allows for a process of generating intervals. In effect, dividing a string into two equal parts leads to what we call the relation of octave (C–C); dividing it into three equal parts produces two intervals "of the same kind": the twelfth and the fifth. If this division is pursued to six parts, one soon obtains the ensemble of consonant relations, that is, relations that by themselves are pleasant and can be expressed by relations of proportions: to each combination of numerators and denominators between 1 and 6 there corresponds an interval. For example, 1/2 (octave), 1/3 (fifth), 2/3 (twelfth), 3/4 (fourth), 4/5 (major third), up to 5/6 (minor third).

There is nothing original about this first result, which leads to a table of relations, and it recalls the classical knowledge that G. Zarlino associates with the virtues of the number 6, except that the Cartesian approach lacks any justification other than auditory sensibility. However, it is in the more complex treatment of the octave that Descartes introduces two very important innovations. First, he shows that each simple consonance can be taken by itself, or redoubled with one or two octaves without any change in value. One (p. 260) thus obtains seven consonant intervals (octave, fifth, major third, fourth, major sixth, minor third, minor sixth) redoubled by octave, then by two octaves, for a total of twenty-one consonances. Each of these redoubled sounds is in some way present in the

sound heard most directly. But it is, above all, through the process of generating intervals and through its confirmation by the aid of resonance that Descartes is most innovative. Each octave division engenders an interval consonant by itself and a rest. Thus, the division that produces the fifth generates, as a rest, the fourth; that which produces the major third generates the minor sixth as a rest, etc. On the other hand, Descartes exploits the results of experiments undertaken during the month of November, 1618, on the properties of resonance called "sympathetic" and shows that it is better produced with the major third than with the fourth. He also uses the passage to an octave by flutes blown harder to support this new theory of consonances. Beeckman takes note of these results in his *Journal* and shows how they allow for better distinguishing intervals.

This leads to an important reconstruction of the field of consonance. The Greek theorists considered only the octave, the fifth, and the fourth as consonances. In the Renaissance, these became perfect consonances, to which were added new ones called "imperfect", namely, the major and minor third and the major and minor sixth.[4] The objective of Cartesian reflection on consonances is to reveal that the major third is more perfect than the fourth. The fourth is called "*monstrum octavae* [the monster of the octave"] (AT X.105) or "*umbra quintae* [the shadow of the fifth]" (AT X.108). Descartes shows, through calculation, through hearing alone, and through experiment with resonance that the major third compound with two octaves (the seventeenth) is more simple than the fourth, and thus more perfect than it. This result has been celebrated by the early historians of musical theory since the seventeenth century.[5] It also reveals the decisive importance in Descartes's eyes of resonance: "no sound is heard, but its octave seems in some way to resonate in the ear more acutely" (AT X.99). In this sense, even if the simple fourth (3/4) has a numerical expression that is more complex than the simple major third (4/5), the major third composed with two octaves, the seventeenth (1/5), is much simpler than all the fourths. The generation of consonances is thus conceived as a series of divisions of a string that goes like this: 1/2: octave, 1/3: twelfth (the fifth to the octave); 1/5: seventeenth (twice the major third to the octave). A final division would produce the intervals of seconds, but Descartes does not treat them in the consonances. These divisions agree with various experiments on strings resonating on the fifth and the third (and not on other intervals), but also on pipes (octave transitions on the flute, for example). From a more specifically aesthetic point of view, this result justifies the role of the major third in musical composition and is expressed in the first rule of composition (AT X.131).

(p. 261) In pursuing the analysis of intervals, one obtains degrees, that is, tones and half-tones. These have as their primary function allowing the move from one consonance to another and allowing for the melody to be led more easily than with consonances alone. Descartes keeps two tones (major and minor), but only one half-tone, the major half-tone, since the minor half-tone does not immediately divide into a consonance.[6] A sketch of scale is accordingly given, always composed of three major tones, two minor tones, and two major half-tones, to which is added a short interval, the Schism, because it is mathematically impossible to divide the octave exactly if one starts with the three types of degrees considered. This point does not lead to very deep reflection on the question of temperament, whereas the topic of the construction of a perfect spinet is the object of nearly

contemporaneous reflections (*Parnassus*, AT X.227), and much later ones (To Colvius, July 6, 1643, AT IV.678–80). The elements indicated in the *CM* regarding scale are complex, but they do not introduce any real changes relative to earlier theorists. Solmization occurs according to the then-prevailing usage, starting from six notes (not seven, as today) and marking the consonant intervals between the names of notes (from C to D, a minor tone; from D to E, a minor tone; from E to F, a minor half-tone; and finally from G to A, a minor tone). In order to express all possible intervals, Descartes recalls the complex system of muances (*mutationes*, mutations). The properly theoretical part of the treatise concludes with the generation and nature of dissonances.

5. Composition and Modes

Descartes does not question the practical aspects of composition, notably the theory of modes and that of cadence. Instead, he refers to Zarlino's treatise and its discussion of cadences and, more generally, of the disposition of consonances in a composition.[7] According to Frans van Schooten, Descartes regarded Zarlino's treatise and one by Salinas (1577) as "expunging the errors of the ancients" (AT X.638). Nonetheless, Descartes specifies in the *CM*, one can discover more and better things by starting from his own foundations than from those of Zarlino (AT X.134).

The practical part of the *CM* is brief. It is composed of some rules and remarks on modes. There are three minimal rules for the elimination of "solecisms", or grammatical errors: (a) sounds emitted together (that is, the vertical dimension of the score) must be consonant, in order to avoid the diminished fourth, for reasons explained above, which now have a practical application; (b) successive sounds must pass through the scale by degrees or consonant intervals; (c) two dissonances must absolutely be avoided: the tri-tone and the false fifth. To these syntactic rules are appended six additional ones for (p. 262) the sake of greater elegance: 1) an air must begin with a perfect consonance; 2) successive octaves or fifths must be avoided, so as to waken attention; 3) proceed by contrary movements; 4) move from a less perfect consonance to a proximate more perfect one; 5) satisfy the ear at the end of an air by a cadence; and 6) respect a mode, that is, the types of division of the octave. Descartes, as well as Zarlino, primarily associates modes with the position of the major or minor third in the scale (AT X.140). Whereas the theory of modes had been, since the Greeks, linked with the question of the ethical and affective properties of music, and in the sixteenth and seventeenth centuries remained connected with the question of the passions in music, Descartes is very discreet on this point. However, a later letter provides a general indication of his view: "in joyous chants, the major thirds and sixths are more agreeable than the minors; the opposite is the case in sad chants, etc". (To Mersenne, January 1631, AT I.223). His correspondence provides some examples of rules or conjectures that supplement those of the *CM* (AT I.19–21, 26–7, 126).

Among methods of writing, Descartes essentially recommends diminution and syncopation. There is diminution when two, four, or more notes correspond to one note in another part. Syncopation occurs when the end of a note of one voice corresponds with the begin-

ning of a note of another voice. These two processes are interesting because they necessarily make dissonances to be heard, the purpose of which is to allow for a better appreciation of the pleasure of perfect consonances or unison. Descartes thus hints at—in a manner that, with respect to Zarlino, is novel—the classic function of dissonance in cadences (which he deals with further in the fifth of the rules regarding elegance).

6. Music and the Passions

The *CM* is the first text in which Descartes takes up the topic of the human passions, but he treats them in a very summary way. There is the formulation of an aesthetic paradox announced in the opening lines, namely that chants can be both sad and pleasant (AT X. 89). Descartes returns to this same paradox—already articulated by both Plato (*Philebus* 48a5) and Augustine (*Confessions* III.4)—in two letters to Elisabeth (May 18 and October 6, 1645; AT IV.202–3 and AT IV.309/CSMK 270). The formulation in the second letter is, despite the passing of time, very similar to that in the *CM*: "This is proven by tragedies: the sadder they make us, the more they please us." To say that the goal of every work of art is to bring pleasure does not imply that it is always gay or joyous. Descartes distinguishes between the evoked affect and the provoked affect. More generally, he suggests that every dimension of a sonorous phenomenon must produce emotional effects. But he concludes by saving this project for another occasion.

> And now it should also follow that I should deal separately with the individual motions of the soul that can be excited by music, and that I should show by what (p. 263) grades, consonances, times, and similar things these ought to be excited in it. But I would exceed the plan of my compendium. (AT X.140)

However, this research is never really developed, such that during the 1630s, despite multiple requests by Mersenne, Descartes gives up any strict correlation between music and the passions. He thus responds soberly to Mersenne that

> 4. I do not know any qualities of consonances that correspond to passions.
>
> 5. You embarrass me as much when asking me how much more agreeable one consonance is than another, as if you were asking me how much more agreeable to me fruits are to eat than fish (To Mersenne, March 4, 1630, AT I.126).

7. From the *Compendium Musicae* to the *Treatise on Man*

We do not know much about the circulation of the *CM* in manuscript after 1619. Descartes summarized his treatise for Mersenne, its dedicatee, in November 1629.[8] Nonetheless, Beeckman kept a copy of it; and other copies were made for Constantijn Huygens (1635), Frans van Schooten, Jr. (ca. 1640), and John Pell (ca. 1649), although we

do not know if these were authorized by Descartes. We also do not know the identity of the *discipulus* who, in 1650, sent a manuscript to a publisher in Utrecht, but it was a different copy from the others. Descartes's responses to musical questions submitted to him by an unknown correspondent and by Mersenne in the autumn of 1629 essentially emphasize the requirement of variety to waken attention (AT I.19–20 and 26–7). However, from this moment on, Descartes is interested in measuring the vibration of strings, something he had not taken into account before (To Mersenne, October 8 and November 13, 1629; AT I.29 and 74). Properties related to the perception of the vibration or quiverings of the string and of the air affecting the ear become determinant. Without realizing it, Descartes has taken over part of Beeckman's explanation, no longer as just an ancillary hypothesis but as the principle itself of the explanation of sensory pleasure. This new explanatory model appears, notably, in the letters of December 18, 1629, January 1630, and February 25, 1630.

The letters to Beeckman in the autumn of 1630 recall this point in a polemical manner. To his old friend, Descartes responds very sharply that he has not stolen a notion that is quite well known (AT I.162). Two letters, probably dating from October and October/November, 1631, specify the distinction between the sweetness of consonances, which is a function of their simplicity and harmony, and their agreeableness. These letters synthesize what Descartes had been writing on the topic since January, 1630. Sweetness (p. 264) and harmony are determined by the way in which sounds more or less come together and thus reach unison. On the basis of this criterion, the fourth is "absolutely" more harmonious than the major third (AT I.223). But agreeableness depends on use or placement. Thus, sometimes less perfect dissonances or consonances can be more agreeable.

Some of these elements come from the *CM*—in particular, the remarks on major and minor thirds relative to the sadness or gaiety of pieces. However, the physical basis is, definitively, the coincidence of vibrations, which allows for the classification of consonances according to their simplicity into octave, fifth, fourth, and thirds, the "least harmonious of all" (AT I.225). A letter from autumn 1631 continues this analysis of the phenomenon of the union of vibrations and adds a remark on the difference between resonance and expectation by the imagination, which refers back to an explanation in the *Compendium*.[9]

This ensemble of letters reveals some novelties. With respect to intervals, the method of the *CM*, grounded on the successive divisions of the string (unison, octave, fifth), proposed a classification of their agreeableness (similarly for the fifth, the fourth, and the major third), the principal originality of which was to put the major third before the fourth, even if the latter, taken by itself, is no more imperfect than the minor third or the sixth (AT X.107, but see also 108). In the letter of 1631, then in the *Treatise on Man*, Descartes sees a very big difference between agreeableness and simplicity. Simplicity depends on a science that has "its very certain demonstrations" and to which Descartes believes he has nothing to contribute (AT I.228). But agreeableness depends not only on demonstrations, but also on circumstances. Its mode of presentation is no longer a matter of mathematics, but a purely qualitative comparison—like, for example, a culinary or visual comparison. Put another way, Descartes in his correspondence in the years 1629–31,

essentially taking his point of departure from Mersenne's questions, tends to distinguish precisely between what, in the study of music, does depend on mathematical demonstration (including also the physics of sound), and what does not. The latter domain is more a matter of probability, based on the advice of practitioners and illustrated by qualitative comparisons. While these two types of element coexist in the 1618 treatise, they are not carefully distinguished. This new approach leads Descartes to profoundly modify one of the important harmonic results of his youthful treatise: the fourth is henceforth "absolutely more harmonious" than the major third (AT I.223).

In the *Treatise on Man*, the definitive explanation of pleasure related to consonances is connected with the concordance of vibrations:

> Note that a single one of these [blows of air] will only be able to cause a dull noise which ceases in a moment, and which varies in loudness depending only on the force with which the ear is struck. But when many of them follow one another, as one sees in the vibrations of strings and of bells when they ring, then these little blows will make up one sound which the soul will judge to be smooth or harsh depending on how equal the blows are to one another, and which it will judge to be (p. 265) higher or lower depending on whether they follow one another slowly or quickly; so that if they follow one another a half or a third or a fourth or a fifth more quickly, they will compose a sound that the soul will judge to be higher by an octave, a fifth, a fourth, or perhaps a major third, and so on. And finally, several sounds mixed together will be harmonious or dissonant depending on the extent to which their relations are orderly, and on the extent to which the intervals between the little blows making them up are equal. (AT XI.149–50/G 122–3)

This explanation is the direct result of Descartes's reflections in response to Mersenne's questions in the autumn of 1631 (AT I.223–6 and 229). The *Treatise on Man* retains from the *CM* the demand for variety from the seventh *Praenotandum*. But besides the fact that the theoretical support is different, the classification of consonances expressed here is more typical than that described in the 1618 treatise. The classic order (octave, fifth, fourth, third, and sixths) is observed in the later work, while the *CM* puts the major third before the fourth in the order of perfection; and the major third even finds itself now in an intermediate position between perfect consonances and dissonances, and regains its old status of an imperfect consonance. In short, Descartes no longer seems committed to the same generation of consonances as in the earlier text, especially with respect to the idea that the division of the octave provides a principal consonance (for example, the fifth) and a rest (the fourth). Likewise, the reference to resonance is no longer present. This explains why, in his letter on Galileo's *Dialogues Concerning Two New Sciences*, he writes:

> The best part is what he has to say on music; but those who know me would rather believe that he got that from me than I got it from him; for I wrote practically the same thing nineteen years ago, at wich time I had not yet visited Italy. (To Mersenne, October 11, 1638, AT II.389/CSMK 128)

In order to equate the theory at the end of the first day of the *Dialogues* with that of his own treatise, Descartes introduces a notable modification into his former theory. In effect, since Galileo's explanation of consonances, just like with Beeckman, lies in the coincidence and commensurability of vibrations, Descartes, it is clear, retroactively projects onto his 1618 essay considerations that he had relegated to the background when he was writing it.

8. The Ban–Boësset Debate

The musical competition organized by Mersenne in 1640 pitted one of Descartes's friends, Jan-Albert Ban, against Antoine Boësset, one of the most important French musicians of the era.[10] The debate had its origin in Ban's insistence on composing a work (p. 266) of music constructed with scientific rigor, which needed to be closer to a speaking voice than a singing voice, by using an exact pronunciation of words accompanied by the necessary intervals, "in a manner that would affect the ears sensibly and the mind intellectually" (cited in Buzon 1999: 170). Ban called this proposed music "*flexanima*" and "*necessaria*" and envisaged creating a strict correspondence between the consonances and modes, on the one hand, and determinate passions, on the other hand. He explains it all in several letters—without, however, producing the treatise he had announced and which, he says, would revolutionize the practice of music. Despairing of ever seeing that treatise, Mersenne sent Ban, in April 1640, a poem already set to music by Boësset, and challenged him to compose, in turn, a melody according to his principles. Ban quickly did this on May 5, 1640. The air composed by Ban was judged to be of very poor quality by Mersenne's correspondents. Ban, for his part, sought the support of Anna-Maria van Schurman, writing her a very long letter that contained, in addition to a defense of his own composition, a rather forceful attack on Boësset's composition (*Corr. Mersenne* X.18–46).

It was because of this attack that Descartes intervened—in a letter of uncertain dating; all we know about it is that Descartes sent it to Constantijn Huygens in 1646, two years after Ban's death (AT III.829–34). Descartes's remarks constitute a justification of the aesthetic choices of Boësset, in particular regarding the relation between the melodic intervals of the music and the emotions represented in the poem. It is possible to relate the analysis of the passions (especially that of love) in this letter with other letters of Descartes—in particular, the letter to Elisabeth of September 15, 1645, and the letter to Chanut of February 1, 1647, as well as with certain elements in the *Passions of the Soul* (especially Part II, article 65 and Part III, articles 195–201).[11] The project of a constant correspondence between musical elements and affects has now been dropped, as has, more generally, the idea of a demonstrative and scientifically composed music. In his letter to Huygens, Descartes stresses the fact that his "reasons" for defending Boësset are "neither mathematical nor physical, but only moral", and that it is "easy to find other reasons that are opposed to them" (AT IV.788; cf. Descartes to Ban, AT III.834).

9. Descartes and the Beautiful

Descartes does not deal with the beautiful otherwise than as what is agreeable, such as this is defined in the *CM*. What is beautiful is a matter especially of objects of vision, and it has no determinate measure. "In general, 'beautiful' and 'pleasant' signify simply a relation between our judgment and an object; and because the judgments of men differ so much from each other, neither beauty nor pleasantness can be said to have any definite measure" (Descartes to Mersenne, March 18, 1630, AT I.133/CSMK 19). In support of this assertion, Descartes refers to the seventh *Praenotandum* of the *CM* (AT X.92). It is (p. 267) thus this idea of sensible proportion that dominates Descartes's aesthetic considerations, in so far as this proportion must be discovered by sense in the visual or audible object—but not in too easy nor in too difficult a manner—in order to be pleasing to it. Outside of sensory judgment, there is no notion of beauty. Since this judgment is not the same in all people, there can be no objective definition of the beautiful. "The one that pleases most people can be called the most beautiful without qualification; but which one it is cannot be determined" (AT I.133/CSMK 19).

The Cartesian conception of music is thus modified and completed in the course of other interests cultivated by Descartes. The *Compendium Musicae* is a part of a mathematico-physical research program, in which the measurable dimensions of an object are treated, independent of any relation to a text or a poetics. The originality of this theory is, from the vantage point of musicology, totally remarkable. In the 1630s, despite the important change introduced by the theory of vibration, there remains the research into a physical pleasure grounded in both unity and variety. What Descartes's partisanship in the Ban–Boësset debate reveals, however, is his recognition—and this is new—of the relation between a poetic text and its musical setting, as well as, correlatively, his taking into consideration aspects that are not just physical, but also moral. In the final years of his life, Descartes—writing to Constantijn Huygens, a remarkable composer in his own right—expressed the desire to write again on music: "And if I die only of old age, I still would like some day to write on music theory" (To Huygens, February 4, 1647, AT IV.791).

Translated by Steven Nadler

Abbreviations

Corr. Mersenne:
Correspondance du P. Marin Mersenne, publiée par Mme P. Tannery, C. De Waard, B. Rochot, et A. Beaulieu, 17 vols. Paris: PUF then CNRS, 1945–88.
G:
Descartes, *The World and Other Writings*, ed. and trans. Stephen Gaukroger. Cambridge: Cambridge University Press, 2004.
OC:
Descartes, *Œuvres complètes*, vol. 1, ed. Jean-Marie Beyssade and Denis Kambouchner. Paris: Gallimard, 2016.

References

Beeckman, Isaac (1939), *Journal tenu par I: Beeckman de 1604 à 1634*, vol. I, 1604–1619, ed. Cornelis de Waard. The Hague: Martinus Nijhoff.

Buzon, Frédéric de (1999), "L' esthétique de Descartes dans la *Correspondance*: à propos de la Lettre à Bannius", in Jean-Robert Armogathe, Giulia Belgioioso, and C. Vinti (eds.), *La Biografia Intellettuale di René Descartes attraverso la Correspondance*. Naples: Vivarium, 167–92.

Caccini, Giulio (1601), *Le nuove musiche*. Florence: Marescotti.

Charrak, André (1998), *Musique et philosophie à l'âge classique*. Paris: Presses Universitaires de France.

Cohen, H. Floris (1984), *Quantifying Music*. Dordrecht: Reidel.

(p. 268) Descartes, René (1653), *Excellent compendium of Musick, with Necessary and Judicious Adversions Thereupon*, translated by a Person of Honor. London: Harper.

Descartes, René (1961), *Compendium Of Music*, trans. Walter Robert. Rome: American Institute of Musicology.

Descartes, René (1987), *Abrégé de musique—Compendium Musicæ*, ed. and trans. Frédéric de Buzon. Paris: Presses Universitaires de France.

Galileo, Galilei (1898), *Discorsi e dimostrazioni matematiche intorno a due nouvelle scienze*, in Galileo Galilei, *Le Opere*, Edizione Nationale, ed. A. Favaro, vol. VIII. Florence: Barbera.

Galileo, Galilei (1974), *Dialogues on Two New Sciences*, trans. Stillman Drake. Madison, WI: University of Wisconsin Press.

Otegem, Matthijs van (2002), *A Bibliography of the Works of Descartes*. Utrecht: Zeno.

Pirro A. (1907), *Descartes et la musique*. Paris: Fischbacher [Reprint: Geneva: Minkoff, 1973.]

Prenant, Lucy (1942), "Esthétique et sagesse cartésiennes", *Revue d'Histoire de la philosophie* 29: 3–13 and 30: 99–114.

Printz, Wolfgang C. (1690), *Historische Beschreibung der Sing- und Klingkunst*. Dresden: Mieth.

Revault d'Allonnes, Olivier (1951), "L' esthétique de Descartes", *Revue des Sciences humaines* 1: 50–5.

Riemann, Hugo (1921), *Geschichte der Musiktheorie im 9.–19. Jahrhundert*, 2nd edition. Berlin: Max Hesse. [Reissued: Hildesheim: Olms, 1990.]

Rodis-Lewis, Geneviève (1993), "Musique et passions au XVIIe siècle, Monteverdi et Descartes", in Geneviève Rodis-Lewis, *Regards sur l'art*. Paris: Beauchesne, 131–53.

Salinas, Francisco (1577), *De musica libri XII*. Salamanque: Gastius. [Reprint: Cassel: Bärenreiter, 1958.]

Seidel, Wilhelm (1986), "Französische Musiktheorie im 16. und 17. Jahrhundert", in Frieder Zaminer (ed.), *Geschichte der Musiktheorie*, vol. 9. Darmstadt: Wissenschaftliche Buchgesellschaft, 1–140.

Walker, Daniel P. (1978), "Mersenne's Musical Competition of 1640 and Jan Albert Ban", in Daniel P. Walker, *Studies in Musical Science in the Late Renaissance*. London: The Warburg Institute and Leiden: Brill, 81–110.

Wardhaugh, Benjamin (2013), *The Compendium Musicæ of René Descartes: Early English Responses*. Turnhout: Brepols.

Wymeersch, Brigitte van (1999), *Descartes et l'évolution de l'esthétique musicale*. Sprimont: Mardaga.

Zarlino, Giosoffo (1558), *Istitutioni harmoniche*. Venise: [Senese]. [Reprint: New York: Broude Brothers, 1965.]

Notes:

([1]) Composed in 1618 and preserved in manuscript form by Beeckman and copied for other scholars, the *Compendium Musicae* was first published in 1650 in Latin, then published in English in 1653, Dutch in 1661, and French in 1668. See Descartes 1987: 19–48; Otegem 2002: 439–70; and Wardhaugh 2013: xi–xl.

([2]) See Beeckman 1939; *OC* I.51–120.

([3]) See Prenant 1942; Revault d'Allonnes 1951.

([4]) Cf. Zarlino 1558: 153.

([5]) "Er ist der erste gewesen, der Tertiam majorem mit unter die vollkommenen Concordantien gezehlet [{Descartes} was the first to count the major third among the perfect consonances]" (Printz 1690: ch. 12, §72, 144–5).

([6]) However, a later letter affirms that the difference between a major and minor half-tone is "fort sensible" (To Mersenne, April 1634, AT I.286). This difference is used in the description of the perfect spinet (Descartes to Colvius, July 6, 1643, AT IV.678–80), where the clavier contains not twelve keys per octave but nineteen. This adds to the typical clavier two natural notes and five altered notes adjacent to these.

([7]) Zarlino 1558: 320–35.

([8]) To Mersenne, December 18, 1629, AT I.100.

([9]) AT I.229, with a reference to *CM*, AT X.107.

([10]) See Walker 1978 and Buzon 1999.

([11]) Buzon 1999: 182.

Frédéric de Buzon

Department of Philosophy, University of Strasbourg

Mersenne: Questioning Descartes

Claudio Buccolini

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Abstract and Keywords

Mersenne’s multidisciplinary interests marked the relationship of intellectual collaboration that linked him to Descartes, whose research and publications he solicited and promoted, though without ever becoming a “Cartesian”. Mersenne “molecularized” the Cartesian philosophy in terms of a series of specific issues, but the way in which the Minim triggered the debate generated criticism and polemics rather than adhesions to Cartesianism. Mersenne based his argumentations on philosophical and theological presuppositions that differed from those formulated by Descartes, particularly concerning the hypothetical status of science, the validity of logical-mathematical truths, the radicalization of divine omnipotence, and the argument of deceiving God. The unpublished theological manuscripts of the 1640s reveal, however, that after the 1641 Objections, the Minim was ready to accept crucial Cartesian metaphysical theses, but in his own peculiar way.

Keywords: Marin Mersenne, hypothetical status of science, deceiving God, eternal truth, science of the atheist, Cartesian metaphysics and theology

(p. 271) 1. Friend, Opponent, and Spokesman for Enemies

BORN in 1588, Marin Mersenne was educated from 1604 to 1609 (approx.) at La Flèche. He studied theology in Paris starting around 1609, and joined the Order of the Minims in 1611. He taught philosophy and theology; then, having obtained a dispensation from teaching, he devoted himself to writing books. Mersenne made his home in the Paris convent of the order starting in 1619, where he remained until his death in 1648.

Mersenne carried out scientific work and research by raising questions and provoking debates. We find this in his published works, from the *Quaestiones celeberrimae in Genesim* (1623), to the several collections of *Questions* published in 1634,[1] and up to the *Novae observationes* (1647), as well as in his entire, extended correspondence. Mersenne was able to entertain personal and epistolary relationships with the most diverse members of the

Republic of Letters, including the deist Herbert of Cherbury, the Calvinist Rivet, and the Socinian Ruar, as well as the atomist Gassendi, the Aristotelian Morin, and the materialist Hobbes. But he also was able to involve his correspondents in a process of scientific collaboration that centered on specific questions and problems, irrespective of their different philosophical orientations. Mersenne also discussed Cartesian philosophy, often disregarding the disciplinary specificity of his interlocutors. With the engineer Pierre Petit (1598–1677), he discussed the metaphysics of *Discourse on Method*;[2] (p. 272) to the mathematician and jurist Fermat, he sent the manuscript of *Meditations*;[3] and he interrogated some of his (almost unknown) *confrères* involved in biblical exegesis or philology (Jean Lacombe in 1640, Jean Durelle in 1642, and Gabriel Thibaut between 1646 and 1648)[4] on the *Dioptrics*, the *Meteors*, the *Meditations*, and the *Principles of Philosophy*. He extended his network to provincial *savants*, such as Christophe Villiers (ca. 1595–ca. 1661) and Théodore Deschamps (ca. 1588–1640), whom he questioned on diverse topics. His attitude sometimes irritated Descartes, who would have preferred not to answer so many questions, as he was contacted even by anonymous interlocutors: the "analysts" or the "geometers" who formulated objections to the scientific essays and the *Discourse on Method*; the so-called Hyperaspistes (AT III.397–412), who sent objections to the *Meditations*; and the mysterious interlocutor who in 1643 proposed mechanical problems in response to which Descartes (AT III.649–50) enunciated the metaphysical-theological foundation of the principle of conservation of movement.

Historians of philosophy labor to follow this diffuse and multifaceted itinerary, as it is hard to capture with a single interpretative label the essentials of Mersenne's intellectual work.[5] Unclear labels like that of "curious" fail to be adequate insofar as they reduce the enormous wealth of Mersenne's multidisciplinary interests to a sort of scientific amateurism, and overlook the importance of his strategy of disregarding the barriers between philosophical or even theological and religious systems in order to focus the debate on specific issues. These characteristics also marked the relationship of intellectual collaboration that for more than twenty years linked Mersenne to his principal correspondent and friend, Descartes, whose research and publications he solicited and promoted, though without ever becoming a "Cartesian". In a first period, before the publication of Descartes's works, his only information consisted in the prudent and circumscribed references or declarations of intent that Descartes entrusted him. Subsequently, after the first publications and according to his research methodology, Mersenne "molecularized" the Cartesian philosophy in terms of a series of specific issues, integrated with passages taken from letters. He submitted these issues to his friends and correspondents, and finally published them in his printed works, but without ever organizing them into a broader philosophical design and without ever presenting them as a (systematic) exposition of Cartesian philosophy.

(p. 273) From the intellectual collaboration with Mersenne and from his network of institutional relations, Descartes benefitted in several ways: the support of a leading theologian who united the role of fierce defender of Catholic orthodoxy with a considerable openness to the ideas of the new science; valuable input on theological questions; a constant update on publications and scientific activities of learned Europe; and a privileged

channel to spread his ideas in educated contemporary circles. However, Descartes carefully selected what he deemed appropriate to divulge through Mersenne and what he reserved for himself and other, more intimate correspondents and peers. Thanks to Mersenne, Descartes gained mostly enemies and fierce opponents, especially in Paris and in French circles: Hobbes, Gassendi, Roberval, Fermat, and an entire series of minor figures, even the young Pascal.

Mersenne never lost his interest in the thought and the work of Descartes, with respect not only to many scientific questions, but also to the metaphysical theses in unpublished manuscripts of the 1640s.[6] But the way in which the Minim triggered the debate on the views of his friend generated criticism and polemics rather than adhesions to Cartesian philosophy. A case in point are the "objections" against Cartesian metaphysics that Mersenne coordinated and redacted anonymously, that is, the Second and Sixth Objections.[7] Integrating in these texts some of his epistemological and theological theses with materialistic and atheistic views that he intended to refute,[8] Mersenne became the "stand-in" for Descartes's enemies. For example, he proposed radical hypotheses that debunk Cartesian physics, such as the idea of "thinking matter" that identifies thought with a bodily motion (*corpus motum*), and that reduces to the mechanics of subtle matter (*motus omnes tuae materiae subtilis*; AT VII.122–3, 413/CSM II.87–8, 278) not only the sensitive faculties of animals, but all human faculties, including thought (*omnia posse facere beneficio elateriorum mechanicorum, absque ulla mente*; AT VII.414/CSM II.279). This attitude cannot be trivialized as due to the "curiosity" of the Minim, or to his taste in sparking polemics or triggering controversy. Mersenne based his argumentation on philosophical and theological presuppositions that differed from those formulated by Descartes, and this introduced profoundly different views for contrast. Rather than yielding an ordered philosophical system, which Mersenne never developed, such presuppositions constitute a constellation of points of reference from which anti-Cartesian arguments originated: the hypothetical status of science; the restriction of the validity of logical-mathematical truths expressed in scientific propositions to the human mind alone, beyond their correspondence to real objects or to truths inviolable by divine omnipotence; the radicalization of divine omnipotence, an omnipotence that not only determines the contingency of the truths of physics but places God above the (p. 274) principle of contradiction—at least as it can be measured by human cognitive tools—and classifies the argument of the deceiving God as insurmountable. According to Mersenne, Descartes solved the epistemological problem of divine deception with an improper, finalist argument, one that deems deception equivalent to iniquity and presumes that one can judge the ends or motives of divine action: God "did not mean his words to correspond to his intentions or decrees" (AT VII. 125–6/CSM II.90; AT VII.415/CSM II.280). For Mersenne, the evidence and the certainty of logical-mathematical proofs are limited by the bounds of the human mind itself; evidence and certainty are not guaranteed by divine truthfulness. The arguments regarding the science of the atheist and the deceiving God in the Second and Sixth Objections are consequential and have a theological basis ("The fifth difficulty [= God as a deceiver] arises from this point [= knowledge of the atheist]"; AT VII.414/CSM II.279). The exam-

ples of divine deception, from the destruction of Nineveh to the fire that torments the damned, are not uttered *in persona impiorum*, but derive from Scripture.

For Descartes, the hyperbolic hypothesis of the deceiving God is contradictory in itself. The *Conversation with Burman* is clear in this regard: “What the author says here is contradictory, since malice is incompatible with supreme power” (AT V.147/CSMK 333). Instead, dissent from the opposing theological thesis, entertained by Mersenne, emerges immediately in the letter of April 22, 1641 (AT III.359–60/CSMK 179), which discusses the arguments of the Objections:

> Those who say that God continually deceives the damned, and that he might similarly be continually deceiving us, contradict the foundation of faith and all our belief, which is that *God cannot lie*. This is stated over and over again in so many places in St Augustine, St Thomas and others that I am surprised that any theologian denies it. They will have to abandon all certainty if they do not admit as an axiom that *God cannot deceive us*.

What Descartes assumed as an axiom was for Mersenne not axiomatic at all. The truth of scientific knowledge does not preclude the possibility that an omnipotent God deceives us continually, infusing in us the species or ideas of things, even if in reality they do not exist: “May not God, then, deceive with similar ideas, and continually disappoint us by sending such seeds (species) or ideas into our souls?” (AT VII.415/CSM II.280). The fundamental contrast between Mersenne and Cartesian metaphysics arises in fact from the contrast between two different conceptions of divine omnipotence, which entail two different conceptions of knowledge and physics.

From the letters on eternal truths (1630),[9] Mersenne was armed with theological and metaphysical convictions that he was not willing to give up quickly,[10] and he was (p. 275) circumspect towards Descartes’s metaphysics and his physics. In the 1630s, the Minim elaborated a mathematical physics that—although prudently framed in institutional terms, and not openly presented as an overthrow of traditional natural philosophy—undermined the cornerstones of the Scholastic building of learning through the constitutive renunciation of both absolute foundations and knowledge of essences and causes. Mersenne’s *physico-mathematica* is a mathematization not of traditional physics, but of the scientific knowledge that we can have of physical phenomena, realized by excluding the traditional hierarchical subalternation of the sciences (“these subalternations do not contribute anything to science”) as well as the distinction between pure and mixed mathematics.[11] Geometry and arithmetic are “general rules that are used to formulate proofs and to draw all conclusions in the sciences” and replace the logic that, not surprisingly, “draws from geometry all that is most firm and secure” (Mersenne 1985: 358). Mersenne had an operational and experimental view of *physico-mathematica*, which allowed him to collect and organize—according to regularities established through mathematical demonstrations—phenomena perceived by the senses about which only explanatory hypotheses can be formulated, without ever claiming to know their physical reality:

> We cannot say that we know anything in the way in which one must know it according to the laws and notions that Aristotle and the other philosophers give of science, if it is not proved that it is impossible that the reason provided or the thing proposed is not true. This suffices to persuade those who use reflection that there is nothing certain in physics.
>
> (Mersenne 1985: 53–4)

Physics “does not provide us with the principles of knowledge”, nor with the knowledge “of the true causes of natural effects” (Mersenne 1985: 56, 357). The objects of the Mersennian *physico-mathematica* remain unknowable in themselves, although they can be mathematized. Mathematics, the first science in terms of certainty and proof, deals not with real but with possible objects,[12] as does physics. Once the issue of the actual existence of quantity is removed, since one cannot affirm in an absolute way whether its objects exist outside the “imagination” or the “pure intelligence” that considers them, mathematics is left without an external foundation. However, related to possible objects, it formulates absolutely certain conclusions. “Pure mathematics *like* metaphysics is a science of imagination or pure intelligence, which deals only with what is possible” (Mersenne 1985: 54). The metaphysics that has its “organ” no longer in the principles of Aristotelian logic, but rather in mathematics, is a science of the possible.[13] The impossibility of extending certainty and scientific (mathematical) demonstration beyond the realm of the possible entails that physics generates hypothetical explanations regarding (p. 276) the reality of the objects with which it deals. This radical idea is opposed not only to Aristotelian Scholastic essentialism, but also to the Cartesian mathematization of physics, which allowed knowledge of physical reality. As we read in the letter from Descartes dated March 11, 1640:

> I would think I knew nothing in physics if I could say only how things could be, without demonstrating that they could not be otherwise. This is perfectly possible once one has reduced physics to the laws of mathematics. I think I can do it for the small area to which my knowledge extends. But I did not do it in my *Essays*, because I did not want to present my principles there … (AT III.39/CSMK 145)[14]

2. Different Omnipotencies

In Mersenne’s view, the human intellect knows the objects of physics on the basis of features that can be experienced, measured, and tested, and through mathematical demonstrations for which the intellect itself generates the principles. The object of *physico-mathematica* is, like mathematics, the work of the human intellect: “man is unable to know the reason of other things, except those he performs himself, nor of other sciences, but only of those whose principles he develops himself, as can be shown by considering mathematics” (Mersenne 1985: 300). Notwithstanding his subtlety and efforts, man cannot know “the true causes of the natural effects”, but can find the true reasons only for the things he produces “with the hand or the mind”, that is, the artifacts and principles of

the sciences that are based on a radical application to the intellect itself of the principle that “knowing is doing”. With regard to the truths and principles of physics, Mersenne stresses that its object belongs to the realm of things created by God. Thus, someone who applies to physics reasons that he derives from objects, physical or mental, that are produced by himself, must always bear in mind that God might produce the same effects in another way.[15] In other words, the entities involved in science are “entities of reason”: more precisely, entities of a “physico-mathematical reason”. The radicalization of this separation between the object of mathematical and scientific knowledge, proper to the human intellect, on the one hand, and physical reality, on the other, marks a distance that remains constant between Cartesian and Mersennian physics.

These assumptions led Mersenne to consider not as definitive but always as open and in competition with other possible explanations the scientific acquisitions to which he (p. 277) devoted his extensive works. This made him constantly return to the same problems, in order to resume and rediscuss them—in his letters, in marginal annotations of copies of his works,[16] and then in the works he subsequently published—on the basis of further experimental data and alternative explanations. In his discussions of eternal truths, Mersenne always identified them with logical-mathematical essences and truths (*natura trianguli, bis 4 esse octo, triangulum* […] *habere tres angulos*; AT VII.418). Thus it is not surprising that even in the Sixth Objections, when he resumes the problem introduced in the famous letters of 1630, Mersenne proposes to Descartes not only the Gassendist hypothesis of their empirical origin (*a rebus existentibus*), or the account of their logical independence as *ideae vel essentiae* of possible things (*vel sunt independentes*) formulated by Roberval in the late 1630s with a particular anti-creationist flavor that Mersenne rejected,[17] but also, and primarily, the hypothesis closest to his own ideas, namely that they *pendent ab intellecto solo dum haec cogitat* (“these truths depend on the intellect that is thinking of them”; AT VII.418/CSM II.281). The latter view defines the eternal truths as “dependent” upon the intellect and circumscribes their existence to the time in which they are thought (*dum*), thus restoring the contingency that the argument of the non-deceiving God attempted to circumvent by taking God to be guarantor of their eternity and of the fact that they could be grasped in reality.

The Second Objections presents the atheistic argument that the idea of God could be an *ens rationis* produced by the human mind that gathers finite perfections, drawn from experience, like degrees of light or heat, or which builds *impossible* mathematical objects of thought, such as the infinite number or the infinite line (AT VII.123–4/CSM II.88–9). These Objections thus show how Mersenne’s epistemology, even with its religious presuppositions, ends up conveying materialistic or even atheistic hypotheses. The objects made *ab operatione intellectus ratiocinantis* (“from an operation of the reasoning intellect”) do not exist *in re*, but only *in intellectu*, and they are not innate ideas (*sed nec ideam habes Dei, quemadmodum nec infinite numbers, aut infinitae lineae*; AT VII.124). Metaphysics is discussed in relation to mathematical objects and propositions: the idea of God is shaped by mathematical quantities (number, line) or reduced to the empirical origin of finite per-

fections. Composed by the human mind, this idea could even be that of an *ens corporeum perfectissimum* (AT VII.124).

The concluding issue, concerning the existence of God, consists in establishing whether the God of Cartesian metaphysics is not only possible or non-contradictory (p. 278) (metaphysics is, in Mersenne's view, the science of the possible),[18] but also existent (AT VII. 127/CSM II.91).[19] The argument to be refuted is that the existence of evil and non-being makes the existence of God impossible or contradictory, a thesis that, when proposed by Mersenne in 1645, will arouse Bayle's interest.[20] Descartes has demonstrated the existence only of a "possible" God: "Now it does not follow from this that God in fact exists, but merely that he would have to exist if his nature is possible, or non-contradictory" (AT VII.127/CSM II.91). Actually, one might argue: "If there is no contradiction in God's existing, it is certain that He exists." However, there are some who consider this assertion dubious or simply deny it. They are the atheists, who accept the certainty of the truths of geometry (AT VII.414) but believe that "God does not exist and is not even possible" (AT VII.415/CSM II.279)—atheists who, unlike the *insipiens* of the Psalms, have science and believe that the empirical evidence for the existence of evil, of finite bodies and goods, turns the possibility of a supremely good, perfect, and infinite entity into a contradiction:

> According to the atheist, if God existed there would be a supreme being and a supreme good; that is to say, the infinite would exist. But the infinite in every category of perfection excludes everything else whatsoever—every kind of being and goodness, as well as every kind of non-being and evil. Yet in fact there are many kinds of being and goodness, and many kinds of non-being and evil. (AT VII.125/ CSM II.89)

In the letter dated November 13, 1645, to the Socinian Florian Crusius, Mersenne resumes similar arguments: someone who denies the possibility of demonstrating the existence of God with apodictic rigor claims that it is impossible to prove whether it is possible or impossible that God exists: *cum dices Deum esse possibilem vel impossibilem* […] *respondet se nescire an implicet, necne, neque illud possit demonstrari* (CM XIII.531). Assuming the existence of evil and non-being, it is not clear how God can exist (*sed et posito male et non ente, non intelligunt quomodo Deus esse possit*), since infinity excludes all other beings and non-entities (*ens infinitum omne aliud ens et non ens expellit*).

The rigid logical-mathematical rationalism that in the Second Objections extends to the request to prove Cartesian metaphysics *more geometrico* (*rem totam more geometrico, in quo tantopere versatus es, concludas*; AT VII.128/CSM II.92) does not derive from the assumption that mathematical reason grasps the realities of physics or metaphysics, since their objects are only possible and unattainable as a priori knowledge of reality. This sort of rationalism involves instead only the idea that geometry's proper way of (p. 279) demonstrating represents the maximum degree of certainty and demonstration. Knowledge and mental contents, however, have an empirical rather than a priori origin. The senses, correctly disposed (*rite dispositos*), always transmit the same thing (*semper idem renuntient*), and this is the greatest degree of certainty that man can attain naturally (AT

VII.418).[21] Certainty concerns sensible experience and scientific demonstrations, not the existence of objects. It is no coincidence that Mersenne views the possibility that there is no material world—which he presents from the texts of the 1630s—to be irrefutable. To this position are connected both his hypothetical conception of science and his rejection (linked to his view of divine omnipotence) of the claim that the guarantee of divine truthfulness entails that the world exists and *really* is a mathematical object. These doctrinal views are opposed to those established in the final paragraphs of the *Principles of Philosophy* (articles 204–7), where moral certainty becomes "absolute and more than moral" (*absolute ac plusquam moraliter*), and God *summe bonus et minime fallax* guarantees at the same time the certainty of the mathematical truths, the existence of material things, and the conclusive reasoning regarding them (AT VIIIA.328/CSM I.290).

As in his writings of the 1630s, Mersenne argues, in opposing skepticism, that the certainty of physical-mathematical science is independent of the physical reality of the known objects:

> Although the Skeptics may object that of all sensible things we distinguish only the images, the phases and the appearances, and that in addition we have no certainty that [the images] can be seen as immune to illusion, because according to the view of many theologians the demons can make up for such things by means of intentional species, from which we would be affected in the same way as by real sensible things, nor did God reveal to us whether, in substitution for real things, here and now we have before us these species and they move our senses; notwithstanding all these considerations our scientific conclusions will be immune to any uncertainty, as it will always be true that things appear as they are understood by the senses and the intellect.
>
> (Mersenne 1636: VII.114)

The validity of science concerns only objects and propositions conceived and constructed by the intellect, apart from any ontological reference to real objects, which in themselves remain unknowable. Mersenne resumed this thesis in several works and radicalized it in a phenomenalist manner: the objects of physics may not exist; they could only consist in their "appearances" or "intentional species". In the 1634 *Questions* he wrote: "We do not have a demonstration by which we can establish the view of those who hold that the earth, the water, the stars and all the bodies we see are nothing but intentional appearances and species, supposing that God can use these species, or accidents, to make us see everything we see" (Mersenne 1985: 53). The angels (like the "evil genius") and surely God can make us know things that only exist within us, and (p. 280) from these, by mathematizing them, we get our scientific knowledge. As he wrote in the *Harmonie universelle*:

> The angels, without needing external objects, can move our internal senses in such a way that we would believe that such objects are present […] they can give the nerves and muscles the same movement that the latter ordinarily receive from external objects; or, if they cannot make up for the presence of such objects, it is

> certain that God can, and by consequence that we cannot know infallibly whether the objects we think we see are […] present or whether they are produced only within us, because in whatever way they are produced, we understand them always in the same way.
>
> (Mersenne 1965 [1636–7]: 80–1)

Divine omnipotence makes it impossible to determine whether external objects exist or whether God has produced only their species and accidents. Scripture does not establish anything about this. The remote origin of these issues is in the Ockamist debates on the cognition of the non-existent,[22] but they are initially settled in the context of the physico-mathematics and subsequently opposed to Cartesianism. Even if perception is explained as a mechanical process, it could still be the case that God introduces its motions into us. The argument is philosophically sustainable and remains valid even by substituting Cartesian ideas for Scholastic species. The issue is linked to that of the deceiving God and the science of the atheist in the Second and Sixth Objections. The certainty of logical-mathematical demonstrations—such as those of geometry, "very certain and also, according to the *regula veritatis* (*juxta tuam regulam*), very evident" (AT VII.414/CSM II.279)—is autonomous and self-sufficient, and thus does not require a divine guarantee. The atheist maintains that they are "so true that even if God does not exist and is not even *possible* (as he believes), he is just as certain of these truths as if God really existed" (AT VII.414–15/CSM II.279). The atheist believes that even if God exercises his omnipotence, He cannot deceive about the logical-mathematical truths.

The situation of the 1630 letters presents itself again: such truths are independent—even according to the atheist—of divine omnipotence. These ideas circulated in the circles Mersenne attended. This is the case with Roberval's anti-creationist argument,[23] or the discussion of the science of the atheist in Petit.[24] However, the theological argument of Mersenne is different and is not founded on the thesis of God's independence of logical-mathematical truths, which Mersenne regards as "possible" entities that are *made* by the intellect in thinking them (*dum haec cogitat*). It is directed rather against the way Descartes relies on the principle that God cannot deceive. This is the fundamental objection to Cartesian metaphysics. The guarantee of the certainty of eternal truths cannot be God, because God *can* deceive. Therefore Mersenne, rather than subjugating the divine omnipotence to independent eternal truths (in line with the theological tradition), believes that it is not possible to limit this omnipotence by the argument of the impossibility of deception. In spite of the eternal truths that we derive in thought, God (p. 281) can deceive us by *continually infusing ideas*—all kinds of ideas—into our minds (*nobisque continuo illudere speciebus vel ideis in animas nostras immissis*), in the same way that "we might think we clearly saw, and perceived with each of our senses, things which in fact have no existence outside us: there might be no heaven or earth, and we might have no arms or feet or eyes etc." (AT VII.415/CSM II.280).

In the Objections, Mersenne updated the arguments of his previous works on Cartesianism, replacing species with ideas: *species vel ideae*. The ground is, as in Descartes's case,

divine omnipotence (*absolute possit disponere*; AT VII.415/CSM II.280), but this omnipotence is understood in a profoundly different way. For Mersenne, ideas and truths have an empirical origin, they arise from experience, but this does not mean that they come from external things or from fallacious faculties. The certainty of physical grounds never turns into the certainty of the knowledge of physics, nor does the certainty of pure mathematics ever become that of the ontological reality of material things (as in the Sixth Meditation, AT VII.71). The theological ground of divine omnipotence does not entail a non-deceiving God.

3. Descartes in Mersenne: From Physics to Theology

In works published after 1637, Mersenne widely uses Descartes's published texts (the scientific essays and the *Principles of Philosophy*) and extracts from his letters. Several scholarly studies have been devoted to these texts, starting from the supplement of the Adam-Tannery edition[25] and Lenoble's classic monograph, up to the recent edition of the Descartes–Mersenne correspondence edited by Belgioioso and Armogathe (Descartes, Beeckman, and Mersenne 2015), passing through the extensive annotations of the edition of the *Correspondance du Père Mersenne* (Mersenne 1932–88). Mersenne inserted texts of Descartes's into his works, but often re-elaborated them with a dispersive effect. The molecularization of the issues, extrapolated from their context and sometimes integrated with contributions and experiences drawn from other correspondents, shows that Mersenne did not intend an exposition of Cartesian thought, but rather the discussion of individual issues concerning analytic geometry, number theory, conic sections, optics, mechanics, hydraulics, ballistics, centers of gravity, conservation of movement, the vacuum, rarefaction, acoustics, music, consonances, and much more. These are issues on which Mersenne solicited Descartes by organizing his letters around a list of disparate subjects. Unlike the author of the *Principles*, however, in the experiments of which he transmitted accurate reports and measurements Mersenne sought not the validation of metaphysical principles discovered a priori, but the foundation of explanatory hypotheses that he reproposed in his published works. Among these (p. 282) hypotheses, the Cartesian ones often play an important role in his texts composed in the 1640s, but never an exclusive or definitive role—not even with regard to experiments related to the vacuum, to which he devoted some pages of the pamphlet that he published shortly before his death, the *Liber novus praelusorius*,[26] which embraces the hypothesis of subtle matter.

Cartesian physics and metaphysics in the epistolary debates and in the printed texts of Mersenne are constantly questioned through objections and counterarguments that, similar to the Second and Sixth Objections, contrast Cartesian apriorism not only with garden-variety empirical and experimental arguments, but also with the need for the demonstrative rigor of mathematics and accurate measurements. However, the unpublished theological manuscripts of the 1640s reveal that, in addition to scientific texts, the Minim also includes Cartesian theses in his theological research, and in a significant way. The

most important examples appear in the commentary on the New Testament, the *Explicatio Novi Testamenti* (this is the formula Mersenne uses to indicate his work on the initial pages of the manuscript). Lenoble and the editors of the *Correspondance du Père Mersenne* rashly dated this work to the middle of the 1620s,[27] but Mersenne was still elaborating it in the 1640s,[28] and from the first pages it contains references to the *Meteors* of the "incomparable René Descartes".[29] As in other works of this period, Mersenne limits the presence of Cartesian theses to brief digressions, and it should be kept in mind that the status of unpublished and unfinished manuscripts is different from that of published texts. Yet the importance of these pages for determining Mersenne's attitude towards Descartes's thought in the years of his full maturity is unquestionable. After the 1641 Objections, Mersenne was ready to accept crucial Cartesian metaphysical theses in his theology. In some passages of the *Explicatio*, the soul is defined as *substantia cogitans*. *Conscience* is explained on the basis of the *cogito*, defined as consciousness, and the existence of God is proved against the atheists, starting from the idea of the *ens summe perfectum*. Finally, from letters and Cartesian texts derive the metaphysical-theological foundation of the principle of conservation of movement and the theory of subtle matter to explain both light and rarefaction.

Although of crucial importance, the few passages in which Mersenne cites Descartes do not amount to the realization of that "whole course of theology" that Descartes, when he was preparing the *Meditations* for print (January 28, 1641), thought the Minim would be able to extract from his philosophy:

> There will be no difficulty, so far as I can see, in adapting theology to my style of philosophizing […] If you think that there are other things which call for the writing of a whole new course of theology, and are willing to undertake this yourself, I shall count it a favor and do my best to help you … (AT III.295–6/CSMK 172)

(p. 283) The way in which Mersenne draws on Cartesian views, extrapolating them from their context and bending them to his own purposes, is anything but an exposition of or a full adherence to Cartesianism. And yet these pages show how the Minim was seriously willing to test the theological use of an alternative physics (and metaphysics) that in his view accorded "in a much more perfect way than Peripatetic [physics] with the mysteries of our faith and the theological dogmas", as he states in the preface to the *Conics* published in 1644 (AT IV.69).

In the *Explicatio Novi Testamenti*, light is defined in terms of Cartesian physics, that is, it "consists in motion, and perhaps it is itself the motion of a certain subtle matter that springs from the body" (ENT 295); rarefaction is explained by "the very fast motion of the subtle matter (*subtilissimae materiae motus celerrimus*) that fills the air and the other bodies" (ENT 380). Furthermore, the metaphysical-theological argument that explains the conservation of the motion of light is taken from Descartes's letter of April 26, 1643, the same one that Mersenne uses in his 1644 *Ballistics*. Responding to questions of mechanics posed by an anonymous interlocutor of the Minim (AT III.648–53), Descartes wrote:

> The other principle is that whatever is or exists remains always in the state in which it is, unless some external cause changes it; so that I do not think there can be any quality or mode which perishes of itself. If a body has a certain shape, it does not lose it unless it is taken from it by collision with some other body; similarly if it has some motion, it should continue to keep it, unless prevented by some external cause. I prove this by metaphysics; for God, who is the author of all things, is entirely perfect and unchangeable; and so it seems to me absurd that any simple thing which exists, and so has God for its author, should have in itself the principle of its destruction. Heat, sound, and other such qualities present no difficulty; for they are only motions in the air, where they encounter various obstacles which make them stop. (AT III.649–50/CSMK 216–17)

In Ballistics (Prop. XXXVIII), Mersenne resumed, in his own way, the Cartesian thesis:

> Once produced, no thing perishes if there is no cause that destroys it, because no thing or no entity is destroyed, just as nothing is even produced. Actually, there are great men who believe that this is so true that it can be included among the common notions; indeed, how will motion be removed from the body, if there is no one who will remove it? In fact, it is supposed that God will no more deny His support to the motion once He has impressed it than He will deny it to other things, and motion being a real mode, how will it vanish, if it is not opposed by any impediment?
>
> […] in the same way in which rest, once it has been acquired, does not necessarily require a cause of consequent rest; analogously the motion, once it has begun, does not require a cause of future motion, since nothing can vanish or begin by itself; with regard to such things I always suppose the conservation by God which is a continuous creation.
>
> (Mersenne 1644: 136, 138; AT VI.42–3)

The “great man” who established the “common notion” is certainly Descartes in the letter of 1643, but Mersenne omitted, in reporting the view, the reference to divine immutability (p. 284) which would give an ontological ground to the eternity of the laws of nature. In presenting the view of the conservation of movement in the *Explicatio*, by contrast, he stated that in relation to the things that God performs, He has no reason to change His mind. But rather than speaking of immutability, Mersenne affirmed that God cannot have reasons for repentance (*illius opera sunt absque poenitentia*). When in Scripture it seems that God changes his mind about something, it is only because theologians explain these steps by taking into account the human way of acting and conceiving such things. In the light of these considerations, Mersenne explains light as the inextinguishable movement of subtle matter and reduces the impression of all movements to creation (*nullus est motus, quem Deus non impresserit corporibus cùm ea condidit*):

> If with light we mean that very rapid movement of matter that impresses on our eyes that passion which we call illumination, there is no movement that God has not impressed upon the bodies when He created them and none of the things God has done perishes because His works are without repentance. And as in all the passages [of Scripture] where this occurs, the theologians explain this only in relation to our way of acting or conceiving, it is possible to state that He created all light from the beginning, since that light that we think we see as if it had just been made was given to that body in which it is seen, by another body that had it before. And in the whole world there is no movement that God has not impressed upon it after having created it. (ENT 359)

When speaking of the soul, Mersenne claims that "the intellect and the will, through which the soul operates, can be called the soul of the person" (*si possent intellectus et voluntas quibus operatur anima personae vocari*) and that they are so bound together in their work "that it is not possible to separate one from the other". He explains that some "refer the act of the will to the *cogitatio*, and thus the rational soul is a 'cogitating substance', willing, unwilling, and so on" (*ut sit anima rationalis substantia cogitans, volens, nolens,* etc.; ENT 419). The endorsement of the Cartesian definition of the *substantia cogitans* in a theological setting is of paramount importance.

Starting from the *res cogitans* and from the *cogitatio*, Mersenne elsewhere presents the problem of the relationship between *consciousness* and *conscience*, using the Greek terms of the New Testament to emphasize the new Cartesian use of the notion of *conscientia*, no longer related to the moral sphere, and taking 'moral conscience' to denote a reflection that accompanies the immediacy of the *cogito*:

> We investigate what conscience [*conscientia*] is […]. Συνείδησις corresponds to the Hebrew *maddah*, of Ecclesiastes 10, 20, which the Vulgate translates with *cogitatio*, and Pagnino with *scientia* […] Thus, the *cogitatio* is science, βουλή, φρόνησις, αἴσθησις, σύνεσις, and either it is the same thing as the συνείδησις, that is, it is *conscientia* (conscience) or else conscience is made from a part of that *cogitatio*; indeed, whatever I cogitate and repress within myself, I am conscious of thinking it, nor is anything more evident to me than I think, while I think [*conscius sum me illud cogitare, neque mihi quidpiam evidentius quam me cogitare dum cogito*]. (ENT 447)

(p. 285) In the *Explicatio*, Mersenne derives from Cartesian metaphysics even the proof of the existence of God based on the idea of the perfect being (*summe perfecti entis habes ideam*; AT VII.67), to which existence is necessarily joined (*necessaria coniunctio existentiae cum ente summe perfecto*). Since God is conceived in a clear and distinct manner (*quae clare distincteque concipiuntur*), this proof cannot be rejected. According to Mersenne, this is the argument to be opposed to those who deny God (*qui Dei negant existentiam*):

> If you have replied to them that you have the idea of the supremely perfect entity, to which existence is necessarily united, and that none of the things that are conceived in a clear and distinct way should be rejected, because of the necessary union of existence with the supremely perfect entity, they have nothing to oppose but their haughtiness or ἀβλεψία. (ENT 116)

As an exegete, Mersenne is willing to accept subtle matter, the preservation of motion, the *cogito*, the *res cogitans*, and the proof of God, though he formulates these in his own way. As he wrote in 1644, the Cartesian philosophy allows him to support theological truths, the dogmas and the mysteries of faith, more perfectly than the Peripatetic philosophy,[30] as well as his views on crucial issues, namely the soul and God. But this does not turn the theology of Mersenne's last years into a "Cartesian" theology.

In an original and personal way, Mersenne establishes the importance of Cartesianism not only in challenging it and highlighting its implications and weaknesses, but also in reformulating it, proposing explanatory uses or integrating it into treatments of theological and exegetical questions. In adding his Objections to the *Meditations*, in which many of his epistemological and theological views of previous years converge, Mersenne questions views which he subsequently welcomes in the theology of the *Explicatio*. In opposing Descartes, he often became the spokesman of the enemies of Cartesianism and of arguments that he himself needed to refute. But the need for rigorous mathematical proof and his own theory of knowledge led him—in adopting in an argumentative way the point of view of empiricists, surveyors, and "atheists"—to formulate objections to what he believed as a theologian. By questioning the views of his friend, he reveals a polemic attitude towards the metaphysics of Descartes that disappears in the theology of his maturity.

References

Bayle, Pierre (1965), *Œuvres diverses*, ed. Élisabeth Labrousse, 4 vols. Hildesheim: Olms.

Buccolini, Claudio (2000), *Mersenne lettore delle rationes more geometrico dispositae di Descartes*, in F. A. Sulpizio (ed.), *Studi Cartesiani*. Lecce: Milella, 89–212.

Carraud, Vincent (1994), "Mathématique et métaphysique: les sciences du possible", *Les études philosophiques* 1–2: 145–60.

(p. 286) Cozzoli, Daniele, and Antoni Malet (2010), "Marin Mersenne and Mixed Mathematics", *Perspectives on sciences* 18: 1–97.

Dear, Peter (1988), *Mersenne and the Learning of the Schools*. Ithaca and London: Cornell University Press.

Dear, Peter (2016), "Mersenne, Marin (1588–1648)", in Lawrence Nolan (ed.), *The Cambridge Descartes' Lexicon*. New York: Cambridge University Press, 493–6.

Descartes, René, Isaac Beeckman, and Marin Mersenne (2015), *Lettere 1619–1648*, ed. Giulia Belgioioso and Jean-Robert Armogathe. Milan: Bompiani.

Garber, Daniel (2004), “On the Frontlines of the Scientific Revolution: How Mersenne Learned to Love Galileo”, *Perspectives on Science* 12: 135–63.

Gregory, Tullio (1974), “Dio ingannatore e genio maligno. Nota in margine alle *Meditationes* di Descartes”, *Giornale critico della filosofia italiana* 28: 477–516.

Hyman, Jeremy (2018), “Un manuscrit des Meditationes retrouvé à la Bibliothèque Municipale de Toulouse”, *Bulletin Cartésien* 47: 174–9.

Lenoble, Robert (1943), *Mersenne ou la naissance du mécanisme*. Paris: Vrin.

Les études philosophiques (1994), “Études sur Marin Mersenne”, *Les études philosophiques* 1/2: 1–231.

Marion, Jean-Luc (1991), *La théologie blanche de Descartes*, 2nd edition. Paris: Presses Universitaires de France.

Mersenne, Marin (n.d.), *Travaux du P. Mersenne sur la bible*. Paris, Bibliothèque Nationale, MS. Latin, 17261.

Mersenne, Marin (1623), *Quaestiones celeberrimae in Genesim*. Paris: Cramoisy.

Mersenne, Marin (1625), *La vérité des sciences*. Paris: du Bray.

Mersenne, Marin (1627), *Traité de l’harmonie universelle*. Paris: Baudry.

Mersenne, Marin (1636), *Harmonicorum libri*, 2 vols. Paris: Baudry.

Mersenne, Marin (1644), *Cogitata physico-mathematica*. Paris: Bertier.

Mersenne, Marin (1648), *Liber novus praelusorius*. Paris: Baudry.

Mersenne, Marin (1933–88), *La correspondance du père Marin Mersenne*, ed. P. Tannery and C. de Waard, 17 vols. Paris: CNRS.

Mersenne, Marin (1965 [1636–7]), *Harmonie universelle*, 3 vols. Paris: CNRS [facsimile of 1936–7 original edition].

Mersenne, Marin (1973), *Les nouvelles pensées de Galilée*, ed. P. Costabel and M.-P. Lerner. Paris: Vrin.

Mersenne, Marin (1985), *Questions Ionuyés*, ed. A. Pessel. Paris: Fayard.

Palmerino, Carla Rita (1999), “Infinite Degrees of Speed: Marin Mersenne and the Debate over Galileo’s Law of Free Fall”, *Early Science and Medicine* 4: 269–328.

Palmerino, Carla Rita (2010), “Experiments, Mathematics, Physical Causes: How Mersenne Came to Doubt the Validity of Galileo’s Law of Free Fall”, *Perspectives on Science* 18: 50–76.

Pessel, A., ed. (1985), *M. Mersenne: Questions Inouyes*. Paris: Fayard.

Petit, Pierre (1925), “Les objections de P.P. contre le *Discours de la Méthode*”, ed. C. De Waard, *Revue de Métaphysique et de morale* 2: 53–90.

Notes:

([1]) Pessel (1985) includes five works published between 1633 and 1634: *Questions Inouyes*; *Questions harmoniques*; *Questions théologiques*; *Les mécaniques de Galilée*; and *Les préludes de l’harmonie universelle*.

([2]) The objections by Petit are among the writings Descartes refers to in the *Praefatio ad lectorem* of the *Meditations* (AT VII.8/CSM II.7). There are some topics included in the Second Objections: on the science of the atheist, and the atheism of the peoples mentioned in the Reports from Canada; on the origin of the idea of God from culture and education; and on the proof of God’s existence from the possible.

([3]) Jeremy Hyman has identified a copy of the manuscript of the *Meditations* sent to Toulouse for Fermat; see Hyman 2018.

([4]) Mersenne 1933–88 [hereafter CM] XV.156–61, 245, 260–2; XVI:95, 216–17, 330, 388.

([5]) Robert Lenoble, author of what is still the most complete study of the works of Mersenne (Lenoble 1943), explains the renunciation of the unifying perspectives of a system and of a metaphysics by appealing to eclecticism and above all to a pragmatism projected towards scientism and positivism with which Lenoble identifies the “mechanicism” of Mersenne (616). The classic text of Lenoble and the idea of mechanicism that it conveys must however be historicized, as pointed out by Peter Dear (Dear 2016: 494–5). On Mersenne, after Lenoble 1943, see Dear 1988, *Les études philosophiques* 1994, Garber 2004, and Cozzoli and Malet 2010.

([6]) On the basis of these manuscripts, Lenoble’s assessment of Mersenne’s attitude towards Cartesian metaphysics should be reviewed; see Lenoble 1943: 441–9, 608–15.

([7]) Mersenne redacted both the Second and the Sixth Objections, in which he published, in addition to his own arguments, those of other colleagues. See the letter to Voetius of December 13, 1642 (CM XI.372–3), and the letter to Durelle of February 26, 1642 (CM XI. 45–52).

([8]) Cf., for example, the atheistic objections discussed with Lacombe in June 1640 (CM IX. 446–7) or with Villiers in May 1640 (CM IX.339–41).

([9]) For the reconstruction of the debate at the time of the letters of Trenta, see Marion 1991. In Mersenne's texts after 1630 and in the Sixth Objections, Mersenne affirms—with regard to the eternal, logical-mathematical truths—that they are "made" by the human intellect, just as are the "principles" of the sciences.

([10]) Mersenne was trained in the culture of the late Renaissance and in the Scholastic philosophy, as indicated in his *Quaestiones celeberrimae in Genesim* and works such as the *Traité de l'harmonie universelle* (1627). His way of adhering to the new science will be particularly laborious; it developed through a series of interim phases, adjustments, and consecutive changes from the *Vérité des sciences* (1625) to the *Liber novus praelusorius* (1648).

([11]) On Mersenne and mixed mathematics, see Cozzoli and Malet 2010.

([12]) See Carraud 1994; Lenoble 1943: 468.

([13]) See Carraud 1994.

([14]) See *Principles*, AT VIII.327; CSM I.289.

([15]) *Afin que chacun considere combien il est difficile de rencontrer des principes, ou des veritez dans la Physique, dont l'objet appartenant aux choses que Dieu a crées, il ne faut pas s'estonner si nous n'en pouvons trouver les vrayes raisons que des choses que nous pouvons faire de la main, ou de l'esprit; et que de toutes les choses que Dieu a faites, nous n'en pouvons faire aucune, quelque subtilité & effort nous y apportions, ioint qu'il les a pû autrement faire* (Mersenne 1636: III.8).

([16]) The importance of the annotated copy of the 1636–7 *Harmonie universelle* is well known (Lenoble 1943: xxiv); to this one should add other copies of works with autographical notes. I have identified: *Quaestiones celeberrimae in Genesim* (Paris, Bibliothèque Mazarine, Rés); two different copies with autographical annotations of the 1636 *Harmonicorum libri* (Paris, B.N. Rés, V 580; Lyon, Bibliothèque Municipale, SJ AK 451/21); and the 1644 *Cogitata physico-mathematica* (Paris, Conservatoire des Arts et Métiers, 4° Cy 9). These annotations also contain references to Descartes or to Cartesian theses. In Mersenne (1973: 305–6), Costabel and Lerner report a copy with two annotations in *Les nouvelles pensées de Galilée*.

([17]) After 1630, this latter hypothesis assumed a singular radicalization in Roberval. In a letter dated April 28, 1638, Mersenne asked Descartes to refute it because he based the truths of geometry on an eternal solid geometric space, independent of divine creation (AT II.117).

([18]) A proof for the existence of God developed by supposing as possible the entity whose existence does not imply contradiction—"if it is possible that it exists then it clearly follows that it exists"—is present in Petit's objections to the *Discourse on the Method*, from which Mersenne drew in the Second Objections; see Petit 1925: 79–80.

([19]) The problem has been solved already in the debate with Cartesian metaphysics, as subsequently in Leibniz.

([20]) Bayle 1965: III.941–3.

([21]) AT VII.418/CSM II.282: “Hence if you have recourse to all your senses when they are in good working order, and they all give the same report, you will achieve the greatest certainty of which man is naturally capable.”

([22]) For discussion, see Gregory 1974.

([23]) See note 17.

([24]) See note 2.

([25]) AT X.561–600.

([26]) See Lenoble 1943: 436.

([27]) See Lenoble 1943: xiv–xv, 535.

([28]) For the new dating of the Paris manuscript (Mersenne n.d.; BN, ms. latin, 17261, cc. 152–481; from now on, ENT), see Buccolini 2000: 94–116.

([29]) *ab incomparabili viro Renato Cartesio, qui tertio de metheoris discursu salis originem, generationem, et proprietates miro acumine prosequitur* (ENT 28).

([30]) AT IV.69: *longe perfectius cum nostrae fidei mysteriis, Theologicisque dogmatibus, quam Peripatetica conveniat; […] non solum Philosophicis, sed etiam Theologiae veritatibus tam foeliciter patrocinaris*.

Claudio Buccolini

Faculty of Letters and Philosophy, Sapienza University of Rome

Princess Elisabeth of Bohemia as a Cartesian

Lisa Shapiro

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Abstract and Keywords

Elisabeth Simmern van Pallandt, or as she is more commonly referred to, Princess Elisabeth of Bohemia, is most well known for her extended correspondence with Descartes and for being the subject of the dedication of Descartes's *Principles of Philosophy*. In that dedication, Descartes notes that "the outstanding and incomparable sharpness of your [Elisabeth's] intelligence is obvious from the penetrating examination you have made of all the secrets of these sciences", that she is the only person who "completely understood all my previously published works", both metaphysics and geometry, that her "intellect is … unique in finding everything equally clear", and finally that she exhibits "all the necessary conditions for perfect and sublime wisdom". Given his admiration for her, it is reasonable to think that Descartes saw Elisabeth not simply as a political patron but also as a philosophical ally, and so to think of Princess Elisabeth as a Cartesian. This chapter examines this claim in more detail. After briefly outlining some salient details of Elisabeth's biography, it considers three different senses in which Elisabeth might be thought of as a Cartesian.

Keywords: Elisabeth of Bohemia, metaphysics, mind, body, ethics

(p. 287) ELISABETH Simmern van Pallandt, or as she is more commonly referred to, Princess Elisabeth of Bohemia,[1] is most well known for her extended correspondence with René Descartes[2] and for being the subject of the dedication of Descartes's *Principles of Philosophy*. In that dedication, Descartes notes that "the outstanding and incomparable sharpness of your [Elisabeth's] intelligence is obvious from the penetrating examination you have made of all the secrets of these sciences", that she is "the only person I [Descartes] have so far found who has completely understood all my previously published works", both metaphysics and geometry, that her "intellect is … unique in finding everything equally clear", and finally that she exhibits "all the necessary conditions for perfect and sublime wisdom" (AT VIIIA.3–4/CSM I.192). Given his admiration for her, it is reasonable to think that Descartes saw Elisabeth not simply as a political patron but also as a philosophical ally, and so to think of Princess Elisabeth as a Cartesian. In this chapter I

will examine this claim in more detail. After briefly outlining some salient details of Elisabeth's biography, I will consider three different senses in which Elisabeth might be thought of as a Cartesian. First, I consider her role in the intellectual networks through which Descartes's philosophy was disseminated throughout Europe. Second, I consider her own adoption of the philosophical ideas in Descartes's philosophy, and in particular his metaphysics. And lastly, I consider her role in the development of Descartes's ethics. (p. 288) I conclude with an assessment of the degree to which Princess Elisabeth is properly understood as a Cartesian.

1. Biography

Elisabeth Simmern of the Palatine was born in Heidelberg on December 26, 1618, the eldest daughter of Frederick V, Elector Palatine, and Elizabeth Stuart, who had twelve other children (two of whom died in infancy). Her mother was the daughter of King James I of England, and the wedding of her parents was recognized as signaling the union of English and Continental Protestantism. Elisabeth's father became King of Bohemia in August 1620, as a result of the Defenestration of Prague, but he soon came to be known as the Winter King as he lost critical battles and then power after only one season. In early November, when it became clear Frederick was losing power, the family went into exile.[3] Elisabeth's paternal grandmother, Electress Juliana von Stolberg, fled to Brandenburg with Elisabeth and her elder brother Charles Louis, where the children stayed until the late 1620s, being raised by their aunt Elisabeth Charlotte. In 1628, they and the rest of the family joined their parents, who had received shelter from Maurice of Nassau (Frederick's uncle) in The Hague.

Elisabeth and her siblings may have been tutored in The Hague by the humanist Constantijn Huygens for Elisabeth corresponded with him (Huygens 1914–17), and she was clearly schooled in courtly arts, but also in languages, logic, mathematics, politics, and the sciences. Elisabeth's father died in 1632, while fighting on behalf of King Gustav of Sweden. In 1633 Elisabeth refused an offer of marriage from the Catholic King Wladislav of Poland, because she would not have been able to retain her Protestant faith. The family remained in The Hague, largely supported by Charles I of England, Princess Elisabeth's uncle. The English Civil War (1640–51), which ultimately resulted in the beheading of Charles I, placed a very great political and financial strain on the family.

As early as 1634, Elisabeth seems to have organized a conversation on Truth between Descartes and John Drury, a Scottish minister who aimed to unite Protestants, at her mother's court in The Hague. Earlier that year, she also met with Anna Maria van Schurman to discuss the question of how to reconcile classical humanism with Baconian New Learning without being heretical.[4] In 1639, Elisabeth can be seen playing a state role, sending condolences on behalf of her mother, and in 1640 she corresponded with Thomas Roe regarding the release of her brother from prison.[5] Also in 1640, Edward (p. 289) Reynolds, an English preacher famous for his sermons, dedicated his *A Treatise of the Passions and Faculties of the Soule of Man* to Elisabeth, and in 1643 we know that Elisa-

beth began a correspondence with Descartes. She also corresponded with Nicolas Malebranche, and there is evidence she also interacted with Leibniz and Francis Mercury van Helmont.[6] In 1660,[7] Elisabeth entered the Lutheran convent at Herford in Germany as adjutrix, and in 1667 she became abbess. There she remained intellectually active, and hosted Quakers as well as other religious minority groups.[8] She died on February 8, 1680.

It is worth briefly mentioning Elisabeth's siblings who survived into adulthood. Charles Louis assumed control of the Palatinate at the end of the Thirty Years' War, and in that capacity restored the University of Heidelberg. Rupert became well known for his soldiering, but also for his chemical experiments and pioneering of an engraving technique. Maurice was an accomplished soldier until his death in 1654. Louise Hollandine was a painter, trained by Gerrit von Honthorst, until converting to Catholicism and entering the convent at Maubisson. Edward converted to Catholicism to marry Anne of Gonzaga; Henrietta married a Hungarian nobleman, but died shortly thereafter. Finally, the youngest sibling, Sophie, who conveyed some of the correspondence between Descartes and her elder sister, became Electress of Hanover, was a patron of G. W. Leibniz, who tutored her daughter Sophie-Charlotte, and was mother of George I of England.

2. Intellectual Networks

Elisabeth was raised and educated largely in the exile court established in The Hague, and managed by her mother, Queen Elisabeth of Bohemia, and it seems that Queen Elisabeth wanted to make her court an intellectual center. As already noted, Cornelius Huygens, John Drury, and Anna Maria van Schurman were present, but so were André Rivet (a Huguenot theologian connected to Marin Mersenne), Marie du Moulin, Dorothy Moore, Samuel Sorbière, and no doubt many others (Pal 2012: 34–6).[9] Elisabeth's correspondence with Descartes reveals her to have been well connected to intellectual circles in the Netherlands and in Germany, where she often spent time with her aunt, and to be interested in understanding and circulating Descartes's philosophy. This connectedness (p. 290) seems to be a natural extension of her upbringing. The question is whether this interest constituted an endorsement of Cartesianism or rather was indicative of Elisabeth's efforts to play a pivotal role in the circulation and discussion of ideas more generally, that is, in the Republic of Letters, in mid-seventeenth-century Europe. The intellectual networks that are revealed in the Elisabeth–Descartes correspondence can help address this question.

Elisabeth's side of the correspondence reveals her to be current about the state of the controversies surrounding Descartes's philosophy and the threat it posed to the hegemony of Aristotelianism and religious orthodoxy in Dutch universities. Elisabeth's letter of May 6, 1643, which opens the extant correspondence, indicates that she was working through the physics and physiology of Henricus Regius, as articulated in his *Physiologia sive cognitio sanitatis* (1641). At that point, Regius had taken up Descartes's physiology in a way that still received Descartes's support, though later they would have a falling out.[10] Yet, Regius had already run into trouble with Gisbertus Voetius, who in 1642, as rector of

the University of Utrecht, engineered a condemnation of Cartesianism and of Regius as anti-Aristotelian and contrary to theological orthodoxy. Indeed, Elisabeth seems to craft her letter in a way that both recognizes Regius as a disciple of Descartes and acknowledges that there may well be a gap between what Regius puts forward and Descartes's own views.[11] If she was not already aware of the tensions between Descartes and Voetius at the time of the 1643 correspondence, it is clear that Elisabeth became apprised of them, as she references them later in the correspondence. In her letter of August 1, 1644, in which she acknowledges Descartes's dedication of his *Principles of Philosophy* to her, she alludes to the controversy between Voetius and Descartes, and suggests that Descartes holds the upper hand. That she would be aware is not surprising, as Voetius was the mentor of Anna Maria van Schurman, whom she knew from her mother's court in The Hague, and with whom she remained sufficiently friendly to correspond, and later to house at the convent in Herford after she became abbess there.[12]

In Elisabeth's letter of June 22, 1645, she notes the conclusion of the matter in Descartes's favor, alluding to the judgment of the Academy of Groningen against Martin Schoock concerning his treatise against Descartes written at Voetius's request.[13] Later in the (p. 291) correspondence, in his letter of December 1646, Descartes notes the publication of Regius's *Fundamenta Physices* with a somewhat derisive remark suggesting that Regius has transformed what he learned from Descartes into a mistake, but he also makes clear that he expects Regius to offer a copy to Elisabeth. Descartes also displays an unequivocal confidence in Elisabeth's support in noting that "even if I am assured that most people did not lack the will to attack me, no one as yet has entered the lists against me" (AT IV.591/S 154). Elisabeth's reply affords Descartes an opening to outline his complaints against Regius's work in his letter of March 1647, and he transmits a copy of *Fundamenta Physices* to Elisabeth through her younger sister Sophie, along with Cornelis van Hogelande's *Cogitationes*, also published in 1646, which Descartes endorses. She indicates that she receives both these works, through her brother Philip, in her letter to Descartes of May 1647.

As the controversies continued, Elisabeth remained well informed. In his letter to her of May 10,1647, Descartes informs her of a range of criticisms, including a charge of blasphemy, raised by the theologians at the University of Leiden, and in particular by a Regent, Jacobus Revius, and a professor, Jacob Trigland (or Triglandius). Elisabeth's letter in response (May 1647) indicates that others had shared Triglandius's charges with her, and she had been apprised of the defense raised on Descartes's behalf. It is clear that Elisabeth is herself a staunch supporter of Descartes, and her encouraging him to stay in the Netherlands must have been understood as explicit political as well as intellectual support (AT V.46–7/S 162).

Elisabeth is also current with developments in algebraic geometry and is well connected with mathematicians. Though she seems to have learned her geometry from Johan Stampioen's *Algebra ofte Nieuwe Stel-Regel* (1639),[14] her solution to the problem of the three circles demonstrates a proficiency with the new algebraic method of solving geometric problems. Through Pollot, Descartes sends Elisabeth an initial introduction to his

own solution in his letter of November 17, 1643, and in his next letter (November 29, 1643) he expresses his pleasure at the solution he received from her, which she had prepared prior to seeing his earlier letter.[15] He writes that her solution conforms to his own method, and he proceeds to offer a set of stylistic principles for solving these problems to make the solutions more elegant and thereby to highlight the regularities afforded in the solution. As evidenced in her letter of December 27, 1645, Elisabeth advocates for the appointment of Frans van Schooten as a professor of mathematics and architecture at the University of Leiden, by speaking with one of the two curators she knows, De Wimenon, as the other, Bewen, is away. Descartes's side of the correspondence excited interest in others of talking with Elisabeth about geometry. We have a letter from John Pell from 1665 requesting her solution, and another from Pell to another mathematician discussing a J. Leuhenschloss and remarking, "You sent me an extract of Letters from Frankford, which speake of him as if he were a profound Cartesian. I hope he did not professe himselfe such, whilest the Princesse Elizabeth was at Heidelberg. Now shee (p. 292) is gone; he may, perhaps justly, say, that he understands Des Cartes better than any Hee or Shee in that University."[16]

Through the correspondence, it becomes clear that Elisabeth leverages her networks to facilitate the circulation of Descartes's physics and medicine. The letters earlier in the correspondence show her keeping abreast of current work in natural philosophy. In her letter of August 1, 1644, in which she acknowledges both her receipt of a copy of Descartes's *Principles of Philosophy* and Descartes's dedication of the work to her, she attests that "the most reasonable of our doctors in this country have confessed to me that they have not studied them [Descartes's principles] at all, because they are too old to start a new method" (AT IV.132/S 83), and while it is not clear to which Dutch doctors she is referring, she presents herself as well connected. Her letter of May 24, 1645, shows her to be reading Kenelm Digby's *Treatise on the Natures of Bodies* (1644), and she remarks on the inaccuracy of his presentation of Descartes's views. She also alludes to having read Descartes's letters to Johan Beverwyck. However, she takes a further step in arranging for Samson Jonsson to translate Digby into Latin so that Descartes can engage with him directly.

In 1646, Elisabeth leaves The Hague for Germany, first to Berlin and later to Crossen. There she begins to circulate and discuss Descartes's works to a new audience, despite her frustration with what seems to her an intellectual backwater.[17] She alludes to promising the Duke of Brunswick-Lunenberg a copy of Descartes's works (November 29, 1646, IV.581/S 152). Elisabeth is pleased to finally have met a person familiar with Descartes's writings—a medical doctor named Weis—with whom she discusses Bacon and to whom she gives a copy of Descartes's *Principles* (February 21, 1647, AT IV.619–20/S 155–6), and she reports having had a substantive discussion with him (May 1647, AT V.49/S 163). In December 1647, Elisabeth acknowledges receiving the French translations of the *Meditations* and *Principles*, and it is clear she engages with those works again (see June 30, 1648, AT V.196/S 171).

The end of the correspondence is taken up with concerns and strategizing around how to engage with Christina of Sweden. Through Chanut, Descartes shared his correspondence with Elisabeth on virtue, as well as a draft of the *Passions of the Soul*, with Christina. He had also shared a copy of the *Principles* with her, though he notes that Christina has directed one of her people to read it to instruct her (February 22, 1649, AT V.283/S 177). While Descartes was clearly self-interested in pursuing a relationship with Christina, he was also aiming to ally two strong women, and their intellectual networks as well. He might also have been trying to facilitate provisions in the Treaty of Westphalia to benefit Elisabeth's family.

(p. 293) Elisabeth's promotion of Descartes's work through her own intellectual connections can be understood as a vehicle for promoting the interests of her family, and by extension herself. The establishment of an exile court at The Hague was an effort to preserve trappings of the political power that had been lost, and it could well have been a calculated play to seize intellectual capital and power by promoting the new philosophy and science of which Descartes was so emblematic. Playing that role need not require any authentic adoption of the Cartesian program, however. Nonetheless, in her letters to Descartes Elisabeth is genuinely engaged with the content of Descartes's philosophy. I turn now to consider the degree to which her philosophical engagement signals her endorsement of Cartesianism.

3. Descartes's Metaphysics and Physics

Princess Elisabeth is most well known for her 1643 correspondence with Descartes on what we refer to as the mind–body problem. In her letter of May 6, 1643, which begins the exchange, she asks "how the soul of a human being (it being only a thinking substance) can determine the bodily spirits, in order to bring about bodily actions" (AT III. 661/S 62). On the face of it, Elisabeth seems to be asking how the soul's ability to affect the body is consistent with Descartes's substance dualism. Gassendi, in his counter objections to Descartes's replies to the Fifth Objections, framed his concern in this way (see AT VII.13/CSM II.275). However, the brunt of Elisabeth's question is a bit different. She is willing to allow the metaphysical consistency of a thinking non-extended substance affecting a non-thinking extended substance, provided the nature of the causation involved in this interaction can be understood. She presents three possible alternatives, all of which require either physical contact or extension, and thus none of them are compatible with Descartes's dualism. She suggests that a better understanding of the substance of the soul rather than its action—thinking—will help in specifying the kind of causation in play.

Descartes's response seems to be a trial balloon. He aims to explain the union of mind and body by, first, identifying three primitive notions—which may or may not be coextensive with the principal attributes that constitute the natures and essences of substances—as the concepts through which we understand all things, and then by asserting that we ought to understand the way the soul acts on the body only through the primitive notion of the union. Elisabeth's question, he maintains, presupposes that we are to understand

the interaction of soul and body through the primitive notion of body. The causal relationship between soul and body is more akin to the Scholastic explanation of heaviness, one understood through the primitive notion of the union, though in that context applied wrongly to bodies.

The trial balloon deflates quickly, for Elisabeth notes that this answer only raises a further question of why we ought not to generalize Descartes's own critique of the Scholastic account of heaviness to the case of the interaction of mind and body. She notes that she is

(p. 294)

> unable to comprehend, by appeal to the idea you once had of heaviness, the idea through which we must judge how the soul (nonextended and immaterial) can move the body; nor why this power to carry the body toward the center of the earth, which you earlier falsely attributed to the body as a quality, should sooner persuade us that a body can be pushed by some immaterial thing, than the demonstration of a contrary truth (which you promise in your physics) should confirm us in the opinion of its impossibility. (AT III.684/S 68)

Elisabeth's objection not only highlights the internal inconsistency of Descartes's appeal to a third primitive notion to address her question, it also demonstrates that her principal interest is less in the metaphysical consistency of dualism with mind–body interaction than in the causal mechanism that is to explain that interaction. Indeed, she concludes "it would be easier for me to concede matter and extension to the soul than to concede the capacity to move a body and to be moved by it to an immaterial thing" (AT III.685/S 68).

Descartes in his reply does not quite get her point, simply reiterating his claims about three primitive notions, and encouraging Elisabeth to use the third to understand the fact of the union of mind and body. But Elisabeth's final letter in this sequence, that of July 1, 1643, makes the point quite simply:

> I also find that the senses show me that the soul moves the body, but they teach me nothing (no more than do the understanding and the imagination) of the way it does so. (AT IV.2/S 72)

Elisabeth wants to understand the nature of causation in mind–body interaction, rather than the metaphysical possibility of that interaction between two really distinct substances. Indeed, she suggests that the absence of a robust account of that causation puts the metaphysics at risk, noting that if we were to prioritize understanding the causal interaction, we might well be willing to suppose that the soul had some qualities of which we were unaware, yet which were nonetheless consistent with thought, that could serve in providing that account of causation which Descartes lacks.[18]

Elisabeth's intellectual priorities, then, lie within the domain of natural philosophy, and in particular accounts of causation and causal mechanisms. The issue of the details of mind–body interaction is not revisited in the later correspondence. However, scattered through-

out her letters are comments regarding causal explanations of natural phenomena, as well as remarks concerning the mechanisms of medical interventions. Even in her letter acknowledging the dedication of the *Principles of Philosophy* to her, she proceeds to raise an objection to Descartes's account of the constitution of quicksilver (presented in *Principles* IV.20–7), as well as to his account of a magnet (at *Principles* 4.133ff, and in particular the discussion at *Principles* IV.146–51). Her objections are detailed, (p. 295) indicating that she was working through Descartes's explanations to ensure that they were internally consistent and adhered to common-sense assumptions about, for instance, the response of particles to the absence of pressure, or particles traveling the shortest distance they can, unless otherwise obstructed.[19]

In her letter of May 24, 1645, responding to Descartes's concern for her ill health, Elisabeth, in addition to appreciating his recognition of the impact of the English Civil War on her state of mind, remarks upon the purported beneficial effects of the Spa waters on health. She is both hopeful and skeptical, wanting some assurances regarding the explanation of the beneficial effects. Descartes reassures her about the waters, but he also advises her quite realistically to try to turn her attention to matters other than the Civil War. Equally, in her letter of October 10, 1646, she moves seamlessly from discussing Machiavelli to describing the properties of the water in a spring near Cheuningen—at Hornhausen—again skeptical about the claims regarding its curative powers and demanding proper causal explanations that exclude other possible causes. She returns to this topic in her letter of November 29, 1646, noting that she thinks it is the "composition of the water" rather than any miraculous properties that can explain whatever good it does (AT IV. 580/S 151–2). Also in that letter, she raises doubts about her doctors' recommendation of bleeding and purges to treat her abscesses, noting that she is gaining weight, and so is likely on the mend. In her letter of August 23, 1648, she describes a "venomous pollen" that falls from the trees near Crossen and causes a redness of the skin, and on which none of the standard remedies seems to have worked, remarking that she recounts the episode in the hopes that Descartes might find "something to confirm some of your doctrines" (AT V.226–7/S 227). In all these cases, Descartes is quick to respond, and to put forward an opinion that reaffirms Elisabeth's explanatory instincts. Elisabeth's scientific interests are very much of a piece with Descartes's. She is suspicious of superstitious explanations of curative waters as well as skeptical of the medical treatments she is prescribed insofar as there is no good explanation for why they should work. She, like Descartes, is interested not only in observing natural phenomena, but in providing efficient causal explanations of what is observed.[20]

Perhaps this shared commitment to efficient causal explanation is most clear in her commissioning from him, in her letter of September 13, 1645, a treatise on the *Passions*. The request comes near the end of their exchange on Seneca's *De Vita Beata*, and Descartes's articulation of the principles of his own moral philosophy. In this letter, Elisabeth is particularly concerned about the exigencies of public decision-making, which by their nature both must be made under conditions of imperfect knowledge and ought to serve the public good. For her, those decisions are inevitably colored by the accidents of the individual

temperament and occurrent passions of the public official (p. 296) insofar as they effectively bias the evidence that is available in favor of one decision or another. She writes:

> I would like to see you define the passions in order to know them better. For those who call the passions perturbations of the mind would persuade me that the force of the passions consists only in overwhelming and subjecting reason to them, if experience did not show me that there are passions that do carry us to reasonable actions. But I assure myself that you will shed more light on this subject when you explicate how the force of the passions renders them even more useful when they are subject to reason. (AT IV.289–90/S 110–11)

In the letters that follow, Descartes begins to respond to Elisabeth's request, and by April 1646 Descartes has drafted what would become the *Traité des passions de l'âme*, for in her letter of that date, Elisabeth provides Descartes with comments. While she finds his enumeration of the passions and the moral elements of the work quite good, she raises concerns about Descartes's physiological claims. Her remarks are not dissimilar from her comments on the *Principles*. Once again, she wants internal and explanatory consistency. She asks for more evidence to support the claims about the physiological changes proper to the passions, and, in particular, a way of reconciling the generalizations about physiology with the common-sense view that different people feel the impact of passions differently. She also asks how wonder, whose effects are found in the brain, can affect the heart as quickly as Descartes claims it does. Descartes responds to some of her queries and expands his account of the physiology of the passions in his letter of May 1646, but Elisabeth has shifted to political philosophy.[21] He, notably, removes any claim that wonder impacts the heart in the *Passions of the Soul*, and indeed in PA a. 71 he notes that "this passion [wonder] has the following peculiarity: it is not observed to be accompanied, as the other passions are, by any change taking place in the heart or in the blood" (AT XI.381/V 57).

4. Descartes's Ethics

In May 1645, Descartes and Elisabeth begin an exchange that ultimately leads to Descartes's fleshing out his ethics, developing the *morale par provision* he sets out in Part 3 of his *Discourse on Method*. This exchange, however, is different from most philosophical discussions in that it begins with the very personal matter of Elisabeth's health. Descartes diagnoses Elisabeth's long-term low grade fever as due to sadness, quite reasonably occasioned by the direct threat of the English Civil War on Elisabeth's family interests, and, as Elisabeth puts it, Descartes has "the kindness to cure [her] body (p. 297) with [her] soul" (May 24, 1645, AT IV.208/S 89).[22] Committed to his original diagnosis, he goes on in his next letter (May or June 1645) to remark how, though we might understand the limited harm a set of events brings to us, one can nonetheless be quite affected by sensing or imagining those events, and those effects can involve substantive physiological changes in one's body. The antidote, according to Descartes, is "to turn her imagination from them so that she thinks of them only when practical matters oblige her to, and so

that she considers only those objects which are capable of bringing her contentment and joy" (AT IV.219/S 92). Elisabeth's insistence that this proposed remedy is all very well in theory but next to impossible in practice moves Descartes to suggest that they read Seneca's *De vita beata* together (July 21, 1645, AT IV.253/S 96). Through his criticism of Seneca, Descartes returns to the ethics he laid out in the *Discourse* (August 4, 1645, AT IV.265–6/S 98–9), and he sets about explaining in greater detail the ways in which virtue, and its concomitant contentment, is within our own power.

The exchange can be challenging to follow, as Descartes continues to write, working out his view, before he receives Elisabeth's responses. Perhaps as a result, Elisabeth's own letters are less fully developed than her earlier ones concerning mind–body interaction. Nonetheless, Elisabeth does raise substantive concerns regarding the key point of Cartesian ethics from a number of perspectives. For Descartes, virtue consists in being resolved to execute what we have judged to be the best, where those judgments derive from our using our minds as well as we can—that is, following Descartes's method. In so doing, Descartes maintains, we will rest content, and in particular have no basis for regret. First, Elisabeth challenges the view that virtue and contentment are solely up to us and the use of our will. For her, moral luck, and in particular the luck of having a bodily constitution that allows us to reason well, is a condition of being virtuous.[23] Second, she objects that reasoning well about practical matters requires having perfect knowledge of the value of things, a knowledge that would require an omniscience no human has. Especially when one's actions impact others, as they do when one holds a public office, in lacking this perfect knowledge, one will always regret decisions that harm the public, even when confident one has judged the best one could, because one will question the valuations that guided those judgments.[24] Elisabeth, more than Descartes, recognizes that the evaluations that guide our practical decisions are colored not only by passions, but also by a natural temperament through which we see things. The ethics Descartes is proposing thus requires a way of identifying and circumscribing the role our passions and our temperament play in practical matters.[25]

Descartes aims to provide these principles in his letter of September 15, 1645, noting that "only two things are required in order to be always disposed to judge well: one is the knowledge of the truth, and the other is the habit of remembering and acquiescing to this knowledge every time the occasion requires" (AT IV.291/S 111). He goes on to **(p. 298)** enumerate the most important truths: there is a God on whom all things depend; the nature of the mind, as able to exist apart from the body, and so the immortality of the soul; the vast extent of the universe; and the interdependence of each of us, though independent, on each other. He also adds that it is important to recognize that the passions exaggerate goods to which they move us, that bodily goods endure briefly compared to those of the mind, that local customs ought to be examined, and that we must cultivate the proper epistemic habits in order to judge well. Elisabeth, in the response in her letter of September 30, 1645, returns to raising objections and pressing Descartes on his internal consistency. Our knowledge of God cannot console us from the "mishaps that are brought upon us by other men" insofar as we assume both those men and ourselves to be free (AT IV.302/S 114); knowledge of the immorality of the soul serves just as well to hasten our

death; knowledge of the great extent of the universe is at odds with the particular providence of God;[26] and our interdependence with others simply brings her back to her point about the inadequacy of our knowledge of the value of things. These points are reiterated in her subsequent letter, of November 28, 1645, and in her letter of November 30, 1645, she presses Descartes on the lack of consistency in holding both that the human will is free and that we are dependent on God for everything.[27]

It is nearly impossible to know whether and to what degree Elisabeth's comments influence Descartes as he continues to develop his moral philosophy and moral psychology in the *Passions of the Soul*. Nonetheless, it is plausible that this exchange influenced the published work, and not least because Elisabeth commissioned it and Descartes was drafting it as they were corresponding. Descartes does remain committed to the primacy of self-mastery, holding in the *Passions* that "firm and decisive judgments concerning the knowledge of good and evil, which it has resolved to follow in conducting the actions of its life" are the best means of regulating the passions (PA 48, AT XI.367/V 46), and even going so far as to hold that "although each movement of the gland seems to have been joined by nature to each of our thoughts from the beginning of our life, one can nevertheless join them to others by habituation" (PA 50, AT.XI 368–9/V 47; see also PA 44, 107, 136, and 211).[28] He also continues to recommend reflecting on divine providence as a way of regulating our desires (PA 145, AT XI.438/V 98). However, he also lends primacy to generosity, which is both a passion and a virtue, maintaining that it is "key to all the other virtues, and a general remedy for all the disorders of the passions" (PA 161, AT XI.454/V 109). In doing so, he does not simply recognize the way in which our passions (and dispositions) themselves can figure in the regulation of the passions. The definition of generosity itself (PA 153) holds that our recognition of ourselves as (p. 299) freely willing is itself a passion, and so can move us, shaping both our actions and our responses to the effects of those actions, to help us to achieve both virtue and contentment. This account of generosity can serve as an answer to Elisabeth's concerns about the unavoidability of regret.

5. Is Princess Elisabeth a Cartesian?

It seems clear that Elisabeth's contemporaries thought of her as a Cartesian. Pell's remark identifies her as a Cartesian, and understandably so. Elisabeth not only read Descartes's works with care; she acted as an ambassador to disseminate the work which had been dedicated to her—the *Principles of Philosophy*—and to discuss it. And she used her connections both to mitigate disputes around Cartesianism and to promote individuals favored by Descartes. These actions suggest an endorsement of Cartesian philosophy.

Yet most of Elisabeth's letters to Descartes contain some kind of objection to Descartes's views. This would seem to suggest that Elisabeth disagrees with Descartes. Here it is important to distinguish between two distinct general areas of discussion in the correspondence: natural philosophy and ethics.[29]

Elisabeth's objections in the domain of natural philosophy concern fine-grained details of the explanations of natural phenomena Descartes offers, be it in his *Principles*, in the draft of the *Passions of the Soul*, or even with regards to the interaction of mind and body. Elisabeth's objections always presuppose a commitment to the primacy of efficient causal explanation. She and Descartes agree that formal causal explanations provide little explanation at all insofar as the action of forms on bodies is wholly mysterious. Thus, in her correspondence with Descartes, she looks for correct efficient causal explanations of magnetism and the properties of mercury, as well as of the effects of various medical treatments on the workings of the body, and of the physiology of the body more generally. Indeed, she holds Descartes accountable to his own reasons for rejecting formal causal explanations as he tries to open a space for such explanations to suffice in accounting for the way our thoughts can affect our body. In this respect, then, Elisabeth is a Cartesian.

It is noteworthy that her brand of Cartesianism entails neither a commitment to metaphysical dualism nor a rejection of it. In the letters that open their exchange, Elisabeth certainly remains open to a mind that is immaterial and non-extended. She seeks only an explanation of such an entity's causal efficacy with regard to the body. Elisabeth's agnosticism about the metaphysics of mind perhaps explains her resistance to Descartes's ethics as he puts it forward in his letters to her. She is unconvinced by the view that our contentment is wholly in our power, provided simply that we are confident that we have acted on our best judgments, in a large part because she recognizes the (p. 300) limits on the power of our mind. Indeed, in light of the apparent inconsistency between human free will and the dependence of all things on God, it sometimes seems as if she would be willing to forsake human freedom for divine providence. Perhaps because she is willing to downplay the role of free will and self-mastery in our contentment, she is more interested in the way the passions influence our actions and in how we might regulate our passions not simply to facilitate virtue but also to minimize regret and so achieve a degree of contentment. In this regard, it is conceivable, if not likely, that she influenced Descartes's own thinking and so the moral psychology presented in the *Passions of the Soul*. While we know a bit about the reception of the definitions and physiology of the particular passions in that work,[30] we know less about the impact and uptake of Descartes's ethics. Descartes's ethics and moral psychology are thus less a part of Cartesianism as we currently conceive of it. Equally, it does not seem that Elisabeth was as proactive about circulating the *Passions* as she was about circulating Descartes's natural philosophy. In all these senses, though Elisabeth engaged with and contributed to Descartes's ethics, her Cartesianism does not extend that far.

References

Agostini, Igor (2014), "Le mythe du cartésianisme d'Élisabeth", in Delphine Kolesnik-Antoine and Marie-Frédérique Pellegrin (eds.), *Élisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin, 101–18.

Alanen, Lilli (2003), *Descartes's Concept of Mind*. Cambridge, MA: Harvard University Press.

Alanen, Lilli (2004), “Descartes and Elisabeth: A Philosophical Dialogue?”, in Lilli Alanen and Charlotte Witt (eds.), *Feminist Reflections on the History of Philosophy*. Dordrecht: Kluwer Publishers, 193–218.

Barclay, Robert (1870), *Reliquiae Barclaianae: Correspondence of Colonel David Barclay and Robert Barclay of Urie*. London: Winter & Bailey, Lithograph.

Belgioioso, Giulia (2014), “Descartes, Élisabeth et le cercle cartésien de La Haye”, in Delphine Kolesnik-Antoine and Marie-Frédérique Pellegrin (eds.), *Élisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin, 13–44.

Broad, Jacqueline (2002), *Women Philosophers of the Seventeenth Century*. Cambridge: Cambridge University Press.

Charleton, Walter (1674), *Natural History of the Passions*. London: James Magnes.

Corneanu, Sorana (2011), *Regimens of the Mind: Boyle, Locke and the Early Modern Cultura Anima Tradition*. Chicago: University of Chicago Press.

Creese, Anna (1993), “The Letters of Elisabeth: Princess Palatine: A Seventeenth Century Correspondence”, PhD dissertation, Princeton University.

Descartes, René (1657–67), *Lettres de Monsieur Descartes*, ed. Claude Clerselier, 3 vols. Paris: Angot.

(p. 301) Digby, Kenelm (1644), *Two Treatises, in the one of which the Nature of Bodies, in the other the Nature of Man’s soul is looking into, in way of discovery of the immortality of reasonable souls*. London: John Williams. [Reprint, New York: Garland, 1978.]

Elisabeth, Princess of Bohemia and René Descartes (2015), *Der Briefweschel zwischen Elisabeth von der Pfalz und René Descartes*, ed. and trans. Sabrina Ebbersmeyer. Paderborn: William Fink.

Foucher de Careil, Alexandre (1879), *Descartes, la Princesse Elisabeth et la Reine Christine*. Paris and Amsterdam: Germer-Ballière/Muller. New edition, Paris: Felix Alcan, 1909.

Garber, Daniel (1983), “Understanding Interaction: What Descartes Should Have Told Elisabeth”, *Southern Journal of Philosophy*, supp. 21: 15–37.

Gaukroger, Stephen (1995), *Descartes: An Intellectual Biography*. Oxford: Oxford University Press.

Harth, Erica (1992), *Cartesian Women: Versions and Subversions of Rational Discourse in the Old Regime*. Ithaca, NY: Cornell University Press.

Hogelande, M. de (1646), *Cogitationes, quibus Dei existential, item animae spiritualis, et possibilis cum corpore unio demonstrator; nec non brevis historia oeconomiae corporis animalis preponitur atque mechanice explicatur*. Amsterdam: Ludovicus Elzevirium.

Huygens, Constantijn (1914–17), *De Briefwisseling van Constantijn Huygens*, ed. J. A. Worp, vols. 3–6.'S-Gravenhage: Martinus Nijhoff.

Kolesnik-Antoine, Delphine (2014), "Élisabeth philosophe: un cartésianisme empirique?", in Delphine Kolesnik-Antoine and Marie-Frédérique Pellegrin (eds.), *Élisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin, 119–38.

Le Brun, Charles (1698), *Conférence de Monsieur Le Brun … sur l'expression générale et particulière …* Amsterdam: J. L. De Lorme and Paris: E. Picart.

Leduc, Christian (2014), "Leibniz et Élisabeth: Réflexions sur Descartes et l'idée de Dieu", in Delphine Kolesnik-Antoine and Marie-Frédérique Pellegrin (eds.), *Élisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin, 185–204.

Malebranche, Nicolas (1961), *Oeuvres de Malebranche*, vol. 18, ed. André Robinet. Paris: Vrin.

Mattern, Ruth (1978), "Descartes's Correspondence with Elizabeth: Concerning Both the Union and Distinction of Mind and Body", in Michael Hooker (ed.), *Descartes: Critical and Interpretative Essays*. Baltimore: Johns Hopkins University Press, 212–22.

Pal, Carol (2012), *Republic of Women: Rethinking the Republic of Letters in the Seventeenth Century*. Cambridge: Cambridge University Press.

Pellegrin, Marie-Frédérique (2014), "Élisabeth, 'chef des cartésiennes de son sexe' ", in Delphine Kolesnik-Antoine and Marie-Frédérique Pellegrin (eds.), *Élisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin, 45–64.

Penn, William (1695 and 1714), *An Account of W. Penn's Travails in Holland and Germany, Anno MDCLXXVII*. London: T. Sowle.

Regius [le Roy], Henri (1641), *Physiologia sive cognitio sanitatis*. Utrecht: Roman.

Regius [le Roy], Henricus (1646), *Fundamenta Physices*. Utrecht: Roman.

Reynolds, Edward (1640), *Treatise of the Passions and the Faculties of the Soule of Man*. London: Robert Bostock. [Facsimile reproduction, ed. Margaret Lee Wiley. Gainesville, FL: Scholars' Facsimiles and Reprints, 1971.]

Rodis-Lewis, Geneviève (1999), *Descartes: His Life and Thought*, trans. Jane Marie Todd. Ithaca, NY: Cornell University Press.

Shapiro, Lisa (1999). "Princess Elizabeth and Descartes: The Union of Mind and Body and the Practice of Philosophy", *British Journal for the History of Philosophy* 7: 503–20.

(p. 302) Shapiro, Lisa (2007), "Introduction", in Lisa Shapiro (ed. and trans.), *The Correspondence of Princess Elisabeth of Bohemia and René Descartes*. Chicago: University of Chicago Press, 1–59.

Shapiro, Lisa (2014), “Je ne regrette rien: Élisabeth, Descartes et la psychologie morale du regret”, in Delphine Kolesnik-Antoine and Marie-Frédérique Pellegrin (eds.), *Élisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin, 155–70.

Shapiro, Lisa (2018), “Psychic Therapeutics: Descartes, Princess Elisabeth, and ‘la bonté de me guerir le corps avec l’âme’ ”, in Isabelle Wienand and Olivier Ribordy (eds.), *Descartes en dialogue*. Basel: Schwabe, 77–91.

Stampioen, Johan (1639), *Algebra ofte Nieuve Stel-Regel*. The Hague: the author.

Tollefson, Deborah (1999), “Princess Elisabeth and the Problem of Mind–Body Interaction”, *Hypatia* 14: 59–77.

Verbeek, Theo (1992), *Descartes and the Dutch: Early Reactions to Cartesian Philosophy 1637–1650*. Carbondale, IL: Southern Illinois University Press.

Voltaire (2017), *Philosophical Letters, or Letters Regarding the English Nation*, ed. John Leigh, trans. Prudence Steiner. Indianapolis, IN: Hackett Publishing.

Yandell, David (1997), “What Descartes Really Told Elisabeth: Mind–Body Union as a Primitive Notion”, *British Journal for the History of Philosophy* 5: 249–73.

Notes:

([1]) She is also known as Elisabeth von der Pfalz. But there are a number of other women named Elisabeth, and related to her, who also held that title, as von der Pfalz, or “of the Palatine”, in this case, refers to an electorate of the Holy Roman Empire, one that held royal privileges.

([2]) While Descartes’s side of the correspondence was published by Clerselier in Descartes (1657–67), Elisabeth’s letters were not discovered until the late nineteenth century, and then only in copies. Her letters were published in Foucher de Careil 1879. See Shapiro 2007 for more details on their provenance.

([3]) The events of this period are considered to be the beginning of the Thirty Years’ War.

([4]) The conversation is described by Samuel Hartlib, a colleague of Drury, in his diary. See Pal 2012: 22–5. Pal also discusses Schurman’s role in Elisabeth’s education (Pal 2012: 72–7), as well as the role her mother’s court at The Hague and Elisabeth played in developing an intellectual community of women in Europe. It would be interesting to trace the network Pal reveals to the network of Cartesian women discussed in Erica Harth 1992. Pellegrin (2014) makes some suggestions in this direction.

([5]) Creese (1993) includes many details regarding Elisabeth’s state correspondence.

([6]) In Malebranche 1961: 130–3, André Robinet maintains that these letters are no longer extant and summarizes their content as reported in Père André’s biography of Male-

branche. Van Helmont and Leibniz are reported to have been at Elisabeth's side near her death. Leduc (2014) discusses what we know of Elisabeth's interactions with Leibniz.

([7]) Coincidentally, in 1660 Charles II (son of Charles I, and king in exile during the Civil War after his father's death) was restored to the English throne.

([8]) The exchanges she has with William Penn and with Robert Barclay are somewhat lopsided—Elisabeth writes very little. See Penn 1695 and Barclay 1870.

([9]) See also Belgioioso 2014.

([10]) Regius was under attack by Professor of Theology Voetius at Utrecht, starting from 1642, precisely because of his Cartesianism, but received support from Descartes until the publication of Regius's *Fundamenta Physices* in 1646 led to a very public falling out. In Descartes's letters to Regius of 1641, we can already see Descartes taking issue with Regius's way of promulgating Cartesian ideas (see AT III.371–2/CSMK 181–2; AT III.454–5/CSMK 199; AT III.460/CSMK 200–1; and AT III.491/CSMK 491–2).

([11]) Alphonse Pollot, a French diplomat, and gentleman in waiting to the Prince of Orange, who facilitated Elisabeth's writing to Descartes to discuss his *Meditations* (discussed in the next section), seemed himself attuned to the inadequacies of Regius's appropriation of Cartesian thought.

([12]) Carol Pal notes that in conjunction with this dispute Elisabeth received a letter from Colvius, transmitting to her his letter to Descartes, pleading with him to end his dispute with Voetius, along with a letter on the astronomical findings of Anton Maria Schyrle von Rheita about five "planets" around Jupiter, along with the criticisms of John Pell and Gassendi. Descartes also received a similar package from Colvius. See Pal 2012: 47–8. See also AT VIIIB.97–8 for Elisabeth's letter to Colvius.

([13]) As becomes clear in Descartes's published responses in his Letter to Father Dinet and Letter to Voetius, what is most at stake for Descartes are the charges of atheism. See Verbeek (1992); Gaukroger (1995: 360–1); and Rodis-Lewis (1999: 163–72).

([14]) See Gaukroger 1995: 334–5 for an account of the quarrel between Stampioen and Descartes. See also Pal 2012: 45–6.

([15]) We do not have the letter with Elisabeth's solution to the problem.

([16]) British Library, additional mss 4364, Letter book of John Pell; 1655–8, f. 150. Thanks to Carole Pal for sharing her discovery and transcription of this manuscript with me. As Pal (2012: 46) points out, Elisabeth's fame as a geometer fades, as Voltaire neglects to acknowledge her mastery of Descartes's geometry in his Letter XIV, "On Descartes and Sir Isaac Newton", where he claims that the geometry was understood only by Schooten and Fermat (Voltaire 2017: 49).

([17]) See for instance her April 11, 1647 letter in which she indicates that though she tried to discuss Descartes's views with one of the doctors in Berlin, he wouldn't listen (AT IV. 630/S 159).

([18]) For interpretations of this portion of the correspondence see: Agostini 2014, Alanen 2003, Broad 2002, Garber 1983, Mattern 1978, Shapiro 1999, Tollefson 1999, and Yandell 1997.

([19]) Descartes takes these concerns seriously and expands this account in his response. See his letter of August 1644 (AT IV.135–8/S 84–5).

([20]) Kolesnik-Antoine (2014) suggests that Elisabeth is an empiricist-Cartesian.

([21]) Elisabeth, in her letter of April 25, 1646, requested Descartes to write a treatise on maxims of civil life (AT IV.406/S 134), about which Descartes demurs. She also requests that he comment on Machiavelli's *The Prince*, which he does in his letters of September and November 1646.

([22]) For a discussion of this turn of phrase, see Shapiro 2018. The discussion there draws on Corneanu 2011.

([23]) See her letter of August 16, 1645 (AT IV.269/S 100).

([24]) Shapiro (2014) discusses Elisabeth's views on regret in more detail.

([25]) See Elisabeth's letter of September 13, 1645 (AT IV.288–9/S 110).

([26]) In her letter of November 28, 1645, she clarifies this point: God, in being incarnated for the point of glorifying creation, would seem to place humankind greater than our small part in the vastness of the universe would suggest.

([27]) Descartes's letter of January 1646 aims to respond to these objections.

([28]) Descartes alludes to this principle in his letter of May 1646, in which he also responds to a number of Elisabeth's questions raised in her letter of April 25, 1646. One would have expected Elisabeth to have some issues with it, but her letters to him are less frequent (the next is from July 1646), as she is clearly pressed by other business.

([29]) It is also important to recognize that the correspondence positions us as witnesses to a real-time philosophical conversation, with all its messiness laid bare. See Alanen 2004.

([30]) See especially Le Brun (1698). It is also likely that others drew on this physiology. Spinoza, in the preface to Part V of his *Ethics*, inveighs against the basis of that physiology in the first part of the *Passions* (with its specious story of mind–body interaction), but also others, such as Charleton (1674), though mostly influenced by Gassendi, would no doubt have also read Descartes on the passions.

Lisa Shapiro

Philosophy Department, Simon Fraser University

Claude Clerselier and the Development of Cartesianism

Tad M. Schmaltz

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Abstract and Keywords

This chapter concerns the relation of Claude Clerselier (1614–84) to Descartes and later Cartesianism. Clerselier was a personal acquaintance and trusted correspondent of Descartes who, after Descartes's death, became his literary executor, and a major figure in French Cartesianism. In this discussion there are sections devoted to the following: 1) Clerselier's interactions with Descartes; 2) his work as editor of Descartes's correspondence and posthumous texts; 3) his role as a leader of the campaign for Cartesianism in post-Descartes France; 4) his involvement in controversies over Cartesianism that focused on the theological issue of the Eucharist; and 5) the legacy of his influence on French Cartesianism.

Keywords: Augustine, Claude Clerselier, Descartes, Eucharist, French Cartesianism

(p. 303) IN his *Life of Descartes* (*Vie de M. Descartes*; 1691), Adrien Baillet claims that Claude Clerselier was "one of the most zealous and the most virtuous of the friends of Descartes" (Baillet 1970: II.171). Clerselier was in fact a personal acquaintance and trusted correspondent of Descartes. Clerselier produced a French translation of the Objections and Replies to the *Meditations on First Philosophy* (*Meditations métaphysique de René Descartes*; 1647), and he played a significant role in the composition of the *Passions of the Soul* (*Passions de l'âme*; 1649). After Descartes's death in 1650, Clerselier became his literary executor, publishing three volumes of Descartes's *Letters* (*Lettres de M.* Descartes; 1657, 1659, and 1667), each of which includes a preface defending Descartes and his work.[1] Clerselier also wrote an important preface to his edition of Descartes's *Treatise on Man* (*Traité de l'homme*; 1664), to which edition he later added the companion piece, *Treatise on Light* (*Traité de la lumière*; 1677).[2] His final publication was a corrected version of the 1647 French translation of Descartes's *Principles of Philosophy* (*Principes de la philosophie*; 1681).

Clerselier was born in Paris in 1614, and died in that same city in 1684. He served as a lawyer at the Paris Parlement. His brother-in-law, the French diplomat Pierre-Hector Chanut, was the primary force behind Descartes's decision to move to Sweden in 1649 to join the court of Queen Christina. Though himself ill, Chanut attended Descartes when the latter succumbed to a similar illness the following year. Chanut was the brother-in-law of a leading advocate of Cartesian natural philosophy, Jacques Rohault, the latter of whom married Clerselier's daughter Geneviève. According to Baillet, Clerselier wanted his daughter to marry Rohault "solely out of consideration for the philosophy of (p. 304) M. Descartes, of which he expected his son-in-law to be a powerful supporter" (Baillet 1970: II.242). Though this comment may be something of an overstatement, it is clear that Clerselier had a firm commitment to the cause of promoting Descartes's philosophy.[3]

In what follows, I consider Clerselier's interactions with Descartes (§1), his work as editor of Descartes's correspondence and posthumous texts (§2), his role as a leader of the campaign for Cartesianism in post-Descartes France (§3), his involvement in French controversies over Cartesianism that focused on the theological issue of the Eucharist (§4), and the legacy of his influence on French Cartesianism (§5). Along the way I will have something to say about his consequential relations, not only with Descartes, but also with various Cartesians such as his son-in-law Rohault, the Utrecht medical professor Henricus Regius, the Saumur physician Louis de la Forge, and the Lorraine Benedictine Robert Desgabets.

1. Interactions with Descartes

As far as we can determine, Descartes first met Clerselier in Paris in 1645, during the former's first trip to France following his emigration to the Netherlands toward the end of 1628. He also met with Clerselier during his subsequent trips to France in 1647 and 1648. It is clear that Descartes's connection to Clerselier was personal as well as intellectual. Thus, in a 1646 letter to his friend Marin Mersenne, Descartes responds to reports of Clerselier's epileptic attacks with suggestions of remedies to be passed along to his doctor (November 23, 1646, AT IV.365–6/CSMK 301).[4]

During Descartes's initial visit to France, Clerselier introduced him to Chanut and offered to contribute a translation of the Objections and Replies to a French edition of the *Meditations* that Descartes was planning. Clerselier also served as mediator in a dispute between Descartes and Pierre Gassendi. Baillet reports a 1646 letter in which Descartes thanks Clerselier for softening some of his language in his response to Gassendi, and for being "all at once his translator, his apologist and his mediator" (Baillet 1970: II.280). Clerselier's mediation did not prevent Descartes from being infuriated by Gassendi's complaints about the inclusion of his objections in the original edition of the *Meditations*. Descartes wrote a letter to Clerselier responding to some of Gassendi's objections in later work that he intended to be a replacement for the entire original exchange between Descartes and Gassendi in the fifth set of Objections and Replies. Though in the French edition of the *Meditations* Clerselier did follow the letter of Descartes's request in includ-

ing the letter immediately after the fourth set of Objections (p. 305) and Replies, he nonetheless violated its spirit in adding a translation of the original exchange to the end of the volume.

Descartes's personal correspondence with Clerselier includes several notable features. In a 1645 letter, Descartes had written to Clerselier to respond to an objection of the latter to one of the most controversial of the seven rules in the *Principles* that govern the effects of collision (February 17, 1645, AT IV.183–8/CSMK 246–8). According to this particular rule, the fourth, any larger body at rest that collides with a smaller moving body remains at rest, whereas the moving body rebounds in the opposite direction while retaining its original speed. In justifying this rule, Descartes appeals to a "least action principle", according to which changes in the incompatible modes of motion and rest that are due to collision must be the least possible needed to make the modes compatible. This principle is not found in the original Latin edition of the *Principles* (1644), and indeed Descartes admits to Clerselier that the discussion of the collision rules in this edition is not "trouble free". In fact, Descartes greatly expanded his discussion of these rules in the French edition of this text (1647). In a letter dating from 1646, Clerselier also forwarded an extended set of objections from Antoine Le Conte, a royal advisor and acquaintance of Chanut, to propositions from Parts III and IV of the *Principles* (July 1646, AT IV.452–72), to which Descartes offered point-by-point responses (August 29, 1646, AT IV.474–85).

Descartes also discussed various metaphysical issues in his correspondence with Clerselier. In his 1645 letter, Descartes closes with praise for Clerselier's defense of his view that the true idea of God is innate. Descartes adds that though everyone has the power to conceive of God in terms of this idea, many people have in fact conceived of God only in a confused manner (AT IV.187–8/CSMK 248). Subsequently, in a 1646 letter, Descartes was prompted by Clerselier's remarks to distinguish between two meanings of the term 'principle', the first and more traditional of which indicates a "common notion", such as the principle of non-contradiction, and the second and more distinctively Cartesian of which indicates a being whose existence is better known than and provides the basis for knowledge of the existence of other things.[5] Descartes insists on the fact that though a principle in the first sense cannot reveal the existence of anything, his *cogito*, which is a principle in the second sense, allows for knowledge of the existence not only of the self but also of God and the external world (June/July 1646, AT IV.443–4/CSMK 290).

In an exchange with Clerselier toward the end of his life, Descartes responds to several "difficulties" that his correspondent proposed concerning certain metaphysical points in Meditation III. Some of these difficulties concern the conception of the infinity of God. Descartes insists that this infinity is not an accident added to substance, but is rather part of the "very essence of substance taken absolutely and bounded by no defects". He then explains his claim in this Meditation that the notion of the infinite is (p. 306) prior to the notion of the finite by noting that in conceiving of being without considering whether it is finite or infinite, he is in fact conceiving infinite being, and can conceive finite being only by "taking something away from this general notion of being" (April 23, 1649, AT V. 355–6/CSMK 377). In effect, then, Descartes is rejecting the view of the scholastic Duns

Scotus that there is a “univocal” notion of being that is neutral with respect to infinite and finite being. At the same time, however, Descartes suggests to Clerselier that the very same notions of substance and being apply to finite and infinite beings. He therefore is committed to rejecting the view that such notions are merely “equivocal”, and thus not common to God and creatures. In terms of the scholastic debate, the only position that remains open to Descartes is the view of Thomas Aquinas that the notion of being applies “analogically” to God and creatures—that is to say, the very same notion applies primarily to God, and in a limited or derivative way to creatures. The position in this letter thus provides a needed supplement to Descartes’s merely negative claim in the *Principles* that the notion of substance does not apply univocally, “as they say in the schools”, to God and creatures (*Principles*, pt. I, art. 51, AT VIII–1.24/CSM I.210).

In the same letter to Clerselier, Descartes reports that he plans to increase by a third the length of his final text, the *Passions*, in order to add “the things you thought were lacking” (AT V.354/CSMK 376). The *Passions* itself includes as a preface two letters to Descartes from “one of the friends of the author” (November 6, 1648, and July 23, 1649) and two responses to these letters from Descartes (December 4, 1648, and July 23, 1649). Though Baillet asserts confidently that Clerselier was this “friend” (Baillet 1970: II.394), the internal evidence suggests otherwise. For one thing, we have seen that in his April 1649 letter to Clerselier, Descartes indicates that he plans to increase the length of his text by a third, whereas he tells his “friend” in his second response dating from August 14, 1649 that he has “added only a few things” to the work since his previous letter of December 4, 1648 (AT XI.326/CSM I.327).[6] In fact, the identity of the “friend” remains something of a mystery, with the distinct possibility that he is none other than Descartes himself.[7]

2. Descartes’s Literary Executor

After Descartes’s death in 1650, his friend Chanut inherited his philosophical manuscripts. Chanut subsequently took these to the Netherlands in 1653, where he compiled an inventory of the manuscripts from Stockholm. He intended at this point to publish a selection of the correspondence, but encountered difficulty in receiving originals of the letters. (p. 307) Thus he abandoned this plan and sent the manuscripts in 1654 to his brother-in-law, Clerselier. Baillet relays the dramatic report that the boat carrying the papers to Clerselier sank in the Seine, with the contents remaining in the river for three days. Baillet claims that the papers subsequently needed to be spread out to dry, and in the course of reassembly their ordering was confused, leaving considerable work for Clerselier (Baillet 1970: II.428). However, Clerselier himself does not mention this event, and in fact Baillet is the only source we have for the story. Nonetheless, we will see presently that Clerselier confronted other significant difficulties in his attempt to edit Descartes’s letters.

The collection of the letters in the three volumes that Clerselier succeeded in publishing is thematic rather than chronological. The first volume (Descartes 1657) begins with a let-

ter on the sovereign good from Descartes to Queen Christina of Sweden, and is dominated by Descartes's correspondence with Princess Elisabeth concerning the passions and happiness. Clerselier notes in the preface to this volume that he included these letters to show that

> morality [*la Morale*] is one of [Descartes's] most ordinary Meditations, and that he was not so strongly occupied with things that happen in the air, or with the search for the secret ways of nature observed below in the production of her works, that he did not often reflect on himself, and that he did not employ the first and most primary of his efforts to instruct himself and to regulate the actions of his life following true reason … (AT V.748)

This first volume includes letters in both French and Latin, though a second edition of the volume (Descartes 1663) provides French translations of the Latin letters. No doubt this edition was published to provide a match for the second volume of the *Letters* (Descartes 1659), which is entirely in French. This second volume is dominated by Descartes's correspondence with his friend Mersenne on issues in physics, mechanics, and mathematics, but also includes the famous letter to Mersenne of April 15, 1630, in which Descartes introduces his doctrine that God has freely created eternal truths. The third volume (Descartes 1667) is devoted, as Clerselier tells us in its preface, to "the conflicts that he has had with the learned, which are perhaps the cause of … this mortal jealously that still reigns in the minds of some after [Descartes's] death" (AT V.765). Thus the volume opens with a long letter to the magistrates of Utrecht, in which Descartes responds to the objections of Gisbertus Voetius (1598–1676), his main critic in the town's university (Descartes 2005: III.1–49).[8]

(p. 308) I have indicated that Clerselier did not have an easy time in assembling the correspondence. In several cases he had access not to the original letters or even copies of them, but only to the "minutes" or notes that Descartes had used in composing them. As Clerselier himself attests in his preface to the first volume of the *Letters*, the notes were rather difficult to reconstruct:

> [T]he manuscript is found in some respects defective, and in others so badly written and disfigured that I had been sometimes reduced to divining what the author had wanted to say; … But what caused me more pain has been that these letters being written only on loose sheets, each detached from the others, and often without date or greeting, the disorder that had arisen there had caused them not to follow each other, and one would recognize there neither beginning nor end … (AT V.750–1)

It is natural that there would be questions about whether Clerselier's reconstructions faithfully represent the letters that Descartes actually sent.[9] One commentator has gone so far as to say that "the Descartes who has passed into history is a Descartes who was *manipulated* by his first editor", and that "in addition to the real Descartes there is the Descartes *of Clerselier*" (Roth 1937: 102–3).[10] However, it may be difficulties with the

source material, rather than manipulations by Clerselier, that explain any deviation of Descartes's originals from the reconstructions that Clerselier published.[11]

There is one notable case in which Clerselier was forced to rely on notes, rather than on originals—namely, that of the eighteen letters from Descartes to Regius that Clerselier included in the first volume of the *Letters*. Regius had retained the originals of these letters and, though there is no hard evidence to this effect, one can speculate that he refused a request from Clerselier to send these for publication. Such a refusal would help to explain the fact that Clerselier included an explicit rebuke of Regius in the preface to this volume.

Before considering that rebuke, it will be helpful to recount first some relevant background concerning the relation between Descartes and Regius. Regius had been a trusted ally of Descartes during disputes about his philosophy at Utrecht from the early 1640s. Indeed, Descartes claimed in print that he is "so confident of [Regius's] intelligence that there is nothing in his writings that 'I could not freely acknowledge as my own' " (AT VIII-2.163). However, when Descartes actually read a draft of Regius's *Foundations of Physics* (*Fundamenta physices*; 1646), he was shocked by the section of the text in which Regius holds that reason is incapable of establishing either the existence (p. 309) of God or the real distinction of the human mind from body. When Regius failed to heed his warnings against publishing this work, Descartes denounced him in a preface to the 1647 French edition of the *Principles*, charging him with not only discounting the demonstration of metaphysical truths on which physics must be based, but plagiarizing and disfiguring the views from the unpublished *Treatise on Man*. In the second edition of his *Foundations of Physics*, retitled *Philosophy of Nature* (*Philosophia naturalis*; 1654), Regius reacted by excising the praise for Descartes included in the preface to the first edition.[12]

In his preface to the first volume of the *Letters*, published three years after *Philosophy of Nature*, Clerselier takes Regius to task for his ingratitude in suppressing this praise. Clerselier also alludes to Descartes's charge of plagiarism by noting that Regius benefitted from views of unpublished works of Descartes that "fell into his hands". He ends by exhorting Regius to return to the orthodox Cartesian fold by embracing Descartes's own metaphysical conclusions regarding human soul (AT V.754).

Regius responded to Clerselier by republishing an earlier exchange with Descartes that adds a preface by a certain Carolus Fabricius, the identity of whom is uncertain, and who may even be Regius himself.[13] In his preface, Fabricius angrily denounces Clerselier for publishing Regius's personal correspondence with Descartes without Regius's consent, and thus for being "a nefarious and wicked violator of sacred and intimate familiarity and friendship". Fabricius further claims that the published letters "do not themselves merit trust" since they are "merely fictitious and made up after the fact" (Regius 1657: 6), an allusion to the fact that Clerselier did not have access to the originals. In response to Clerselier's charge that Regius showed ingratitude by removing his praise for Descartes, Fabricius insists that Regius was forced to do so by Descartes's mistreatment of him. Moreover, he responds to the charge of plagiarism by insisting that it is not Regius who

was the plagiarist, but Descartes, since Descartes "has appropriated the integral collection of Regius on physiology, of which he had knowledge a number of years beforehand, and transformed the content for his use" (Regius 1657: 9). In closing, however, Fabricius claims that Descartes actually came to regret his break from Regius, appealing to reports that after his move to Sweden in 1649, Descartes expressed remorse over his earlier condemnation of Regius and praised his former disciple.[14]

Perhaps because he attributed this harsh response to Fabricius rather than to Regius himself, Clerselier reached out to the latter in 1659 to ask for his assistance in producing figures for the edition of the *Treatise on Man* that Clerselier was preparing. As Clerselier indicates, his thought was that Regius's participation in this project would provide a means of restoring his former connection to Descartes (AT XI.xiv–xv). Still smarting from the harsh remarks in Clerselier's preface, Regius declined the request, noting that he did not want to appear to support the slanderous view that he had seen this text earlier (Regius 1661: 38–40).

(p. 310) With Regius's rejection, Clerselier needed to find someone else to provide the illustrations for his edition of the *Treatise on Man*. At the end of the preface to the second volume of Descartes's *Letters*, he notes that because this edition cannot be published without these illustrations, "I invite all those learned to help me by supplying them" (AT V. 764). In fact, Clerselier received a 1660 response to this solicitation from the provincial physician La Forge, who offered to provide a commentary on Descartes's text in addition to illustrations. Clerselier's edition of the *Treatise on Man* includes La Forge's illustrations and commentary, as well as further illustrations from the Louvain professor Gerard de Gutschoven and, as an appendix, a French translation of Florent Schuyl's preface to his Latin translation of the *Treatise on Man* (Descartes 1662).[15]

La Forge subsequently became a member of Clerselier's French Cartesian circle. In fact, the third volume of Descartes's *Letters* ends with a letter from Clerselier to La Forge, dated December 4, 1660, and entitled "Observations of M. Clerselier concerning the action of the soul on the body". In his letter, Clerselier claims that "due to the infinite distance between non-being and being", only the infinite power of God is able to produce new motion in the world. A finite mind, "such as the human mind, can only be capable of determining the motion that is there already" (Descartes 2005: III.642). Clerselier considers the objection that a finite mind can create motion since this is a mere mode of matter, but responds that since motion adds something new to nature, only God can produce it. With this letter, Clerselier indicates an initial move toward more occasionalist views of the mind–body relation in the work of later Cartesians, and away from Descartes's own emphatic claim that the fact that the fact that the mind "can set the body in motion is something that is shown to us … by the surest and plainest everyday experience" (Descartes to [Arnauld], July 29, 1648, AT V.222/CSMK 358).[16]

3. Leader of the French Campaign

Both immediately before and then after the death of Descartes, the reception of his work during the seventeenth century was constrained by local conditions. This can be illustrated by a comparison of his different receptions in the Netherlands and France. Paul Dibon has observed—correctly—that "the history of Cartesianism in the Netherlands is dominated by university controversies" (Dibon 1990: 606). In fact, Descartes's views began to be taught in the Dutch universities already by the early 1640s, and the views prompted academic controversies immediately in Utrecht, in 1642, and later in Leiden, in 1647. In contrast, despite Descartes's own efforts to secure the endorsement of the Paris Faculty of Theology and the Jesuits for the teaching of his views in his native (p. 311) France, prior to the 1660s French academics for the most part simply ignored the new Cartesian system. However, there were non-academic outlets in France for the initial consideration of Descartes's views. For instance, these views featured prominently in private academies such as those sponsored by Henri-Louis Habert Montmor, held from 1653 to 1664, and the *médecin cartésien* Jean-Baptiste Denis, held from 1664 to 1672.[17]

The difference between these receptions of Descartes is reflected in the fact that whereas the main promoters of Dutch Cartesianism were academics, such as Regius initially and later Johannes de Raey and Tobias Andreae, it was the non-academic Clerselier who served as the primary proponent of Cartesianism in France. Clerselier explains his decision to introduce his readers to Descartes through his letters in the preface to the second volume of his edition:

> It is for Descartes as for all other celebrated authors, the writings of whom are ordinarily of two kinds. The ones are called *Acroamatiques*, that is to say, difficult, elevated, and to be grasped demand the explanation of an instructor, or at least a very serious attention of the reader. And of this kind are the *Meditations Metaphysiques* of M. Descartes, his *Principes de Philosophie*, his *Dioptrique*, his *Geometrie*. The others are called *Exoteriques*, that is to say, easy, popular, which have need of almost no explanation, and can be understood by everyone. And of this kind are the method of this same author to conduct reason [i.e. the *Discours de la méthode*], his responses to the libels of his enemies, and the letters that he has written to his friends. (AT V.756–7)

In the Netherlands, the emphasis was on the promotion of a rather "Acroamatique" version of Cartesianism in Latin textbooks meant for use in the schools. In focusing initially on Descartes's "exoteric" writings, however, Clerselier clearly was setting his sights beyond the academy to the broader intellectual world.

This strategy for the promotion of Cartesianism is also reflected in the popular *Mercredis* of Rohault (from ca. 1659 to 1671). Clerselier reports that the demonstrations of Cartesian physics by his son-in-law, which included dramatic use of illustrating experiments, converted many to the new Cartesian philosophy, and that "a great number of persons of standing were found in this assembly (where the women even often held the first rank)

and who never left without applause and admiration" (AT V.758–9). Among the converts was Pierre-Sylvain Régis, who subsequently provided a version of Rohault's *Mercredis* in the French provinces. Back in Paris, women took the lead in the promulgation of Descartes's views, with discussions of Cartesianism during the 1660s and 1670s in the salons of the comtesse de Grignan, the marquise de Sablé, and the duchesse du Maine. A theoretical basis for the resonance of Cartesianism with women is provided by a series of writings published between 1673 and 1675 by François Poulain de la Barre. Appealing to the principle, drawn from Descartes and his followers, that "the mind has no sex", Poulain argues for a reform of the educational curriculum that will overcome the corrupting effects of tradition and allow women to take their proper place in society.[18]

(p. 312) Beyond encouraging popular outreach, Clerselier was concerned to address the charge that Descartes's religious views are heterodox and thus that the new Cartesian philosophy is politically unacceptable. Though Descartes himself confronted this charge, it became increasingly prominent after 1663, when the Roman curia placed an edition of Descartes's works on the *Index of Prohibited Books* (*Index librorum prohibitorum*), albeit with the qualification, "until corrected" (*donec corrigantur*). The desire to counter this charge is reflected in the materials related to the grand ceremony in 1667 to mark the reburial of Descartes's remains at the Church of the abbey Sainte-Geneviève du Mont in Paris. For this event, Clerselier gathered together a set of *mémoires* attesting to Descartes's fidelity to the Catholic faith, including testimony from Descartes's confessor in Sweden, François Viogue, as well as from Christina, the former Queen of Sweden, who credits Descartes with influencing her decision to convert to Catholicism. In anticipation of the troubles for Cartesianism to come in France (see §4), however, the chancellor of the University of Paris, Pierre Lallement, was prevented from pronouncing the funeral oration by royal order.[19] As Lallement indicates in a journal, this order reflected concern about the suggestion of official approval for Cartesian doctrines.[20]

After the *Index* condemnation in 1663, it became an important strategy of Clerselier to counter the charge of theological heterodoxy by stressing the connection of Cartesian philosophy to the views of the Church Father St. Augustine. Prior to this date, Clerselier mentions Augustine only incidentally in the preface to the first volume of the *Letters* and not at all in the preface to the second edition. However, Clerselier's preface to his 1664 edition of Descartes's *Treatise on Man* includes an extended commentary of Augustine's views in *On the Trinity* X.10. One main goal here is to draw attention to the fact that such views reinforce the theologically orthodox result in Descartes that "the human soul is of a spiritual nature, and is really distinct from that of body" (Descartes 1664: n.p.).

As indicated in §2, Clerselier's edition of the *Treatise on Man* includes contributions from La Forge. In fact, La Forge attempted to complete this *Treatise* by offering a Cartesian account of the human mind and its relation to body, in his *Treatise on the Human Mind … Following the Principles of René Descartes* (*Traité de l'esprit de l'homme … Suivant les principes de René Descartes*; 1666). The lengthy preface to La Forge's *Treatise* continues the attempt in Clerselier to link Descartes to Augustine, as indicated by its subtitle, "In which the author displays the conformity of the doctrine of Augustine with the opinions of

Descartes, concerning the nature of the soul" (La Forge 1974: 75). On one count La Forge cites Augustine in his preface no less than fifty-one times,[21] and in the course of his discussion of Augustine he quotes or summarizes passages from eleven different Augustinian texts. La Forge may well have consulted the collection of Augustinian passages that André Martin published as Ambrosius Victor in 1653 (*Saint Augustine, On the Existence and Truth of God*) and 1656 (*Saint Augustine, On the Soul*). However, there is a difference between the use of Augustine in La Forge (and Clerselier), on the one hand, and Martin, on the other, that can be understood in terms of the seminal distinction in (p. 313) the work of the French scholar Henri Gouhier between augustinized Cartesianism (*cartésianisme augustinisé*) and cartesianized Augustinism (*augustinisme cartésianisé*) (Gouhier 1978). Martin is concerned to defend the continuing relevance of Augustinian philosophy by presenting it in terms drawn from Descartes. As Gouhier notes, the slogan here is, "Descartes with us!" In contrast, Clerselier and La Forge both cite Augustine in order to defend the religious orthodoxy of Cartesian philosophy by linking it to the views of Augustine. Their slogan is, to quote again from Gouhier, "St Augustine with us!" (Gouhier 1978: 13–14).

Subsequently there were competing proposals for a genuinely augustinized Cartesianism in the work of Nicolas Malebranche and Antoine Arnauld. Whereas Malebranche insisted that the ideas we perceive exist in God's mind, and that such ideas reveal the wisdom of divine action, Arnauld countered that our ideas are only modifications of our own mind and that such ideas cannot reveal the reasons for God's actions. The protracted and bitter dispute between Malebranche and Arnauld lasted from 1683 until the death of the latter in 1694, and it was recognized at the time as one of the major events of the seventeenth century. In a sense, this dispute is the culmination of Clerselier's attempt several decades earlier to link Augustine to Descartes.[22]

4. Entanglement in Eucharist Controversies

The reception of Descartes in France during the second half of the seventeenth century was dominated by the implications of his physics for the Catholic doctrine of the Eucharist. According to this doctrine, the body and blood of Jesus Christ are substituted for the bread and wine by means of "transubstantiation". There is an opposition here not only to Lutheran "consubstantiation", according to which Christ is physically present together with the Eucharistic elements, but also the Calvinist doctrine that Christ is merely spiritually present in the sacrament. Another notable feature of the Catholic doctrine is the view that the "species" of the elements—that is, their observable properties—are present without inhering in any substance. In his set of Objections to the *Meditations*, Arnauld focuses on the latter feature of the doctrine, asking how it could be reconciled with Descartes's own rejection of "real accidents" in bodies distinct from their shapes, sizes, and motions (AT VII 217–18/CSM II.152–3). In response, Descartes insists that he can identify the species with surfaces of the Eucharistic elements that persist, even when the

substance of these elements has been eliminated due to consecration (AT VII 249–51/ CSM II.173–5).

(p. 314) Descartes was confident enough of his account of the Eucharistic species to proclaim it publically. However, he was much more reticent about his views concerning the manner in which Christ's body is present in the sacrament. In a letter of February 9, 1645, to the Jesuit Denis Mesland, Descartes offers "in confidence" the view that Christ is present by means of the union of his soul with the particles of the Eucharistic elements (AT IV.168–9/CSMK 243–4). Descartes admits that this view will be "shocking" for those who think that in order for Christ to be physically present in the Eucharist, all of the parts of his body must be there "with *numerically* [*numero*] the same matter as they were composed of when he ascended into heaven", and it is no doubt for this reason that Descartes requests that his correspondent not communicate his explanation "unless you judge it to be altogether in accord with what has been laid down by the Church", and that if he did communicate it he "not attribute its authorship to me" (AT IV.165/CSMK 242). Though Descartes continued to defend this account in a subsequent letter to Mesland (1645/1646, AT IV.347–8/CSMK 279), he nonetheless was not entirely comfortable with it. This is clear from the fact that when Clerselier asked him around the same time for his view of the real presence of Christ in the Eucharist, Descartes offered something much more ambiguous than he had offered Mesland, referring merely to the fact that "the matter of the body of Jesus Christ" is placed "under the dimensions of the bread" (March 2, 1646, AT IV.373).

When he received Descartes's manuscripts, Clerselier discovered the more complete account of the real presence in the two letters to Mesland. He also recognized the sensitive nature of this account, as shown by the fact that he refrained from including the letters in his edition of Descartes's correspondence.[23] Nonetheless, Clerselier evidently considered the account to be potentially helpful in demonstrating Descartes's religious orthodoxy, since he circulated a summary of it among various theologians to gauge their reaction.[24] He revealed the account initially in 1654 correspondence with Descartes's former confessor Viogue, and there is evidence that he sent copies of the Mesland letters to the Benedictine Robert Desgabets around the same time.[25] In 1659, Clerselier revealed the view as well to the Jesuit Jean Bertet, somewhat unfortunately from Clerselier's perspective since Bertet informed his fellow Jesuit Honoré Fabri of the view, prompting the latter to send a censure of it to Rome in 1660. Clerselier was obliged at this point to offer a defense on Descartes's behalf.[26]

(p. 315) Around this same time Clerselier received some criticisms of the account in the Mesland correspondence from Pastel, a physician from Auvergne. He passed these along to Desgabets for response, and was so impressed with Desgabets's defense of Descartes that he wrote to Pastel that "this good religious examines things to the bottom and shows, by his responses, that he has much piety and erudition" (Clerselier 2009: II.138).[27] When he received a 1667 letter in which the Cartesian Oratorian Nicolas Poisson charged that the Mesland account of the Eucharist is heretical, Clerselier again called on Desgabets for assistance. Once again Desgabets responded in a manner that impressed Clerselier,

who wrote to Poisson that Desgabets's discussion "will persuade you better than all my words could" (Clerselier 2009: II.161).

Desgabets's views on the Eucharist were revealed in his anonymously published *Considerations of the present state of the controversies* (*Considérations sur l'etat présent des controverses*; 1671). Soon thereafter there was a royal decree of August 4, 1671, against the teaching of deviant views at the University of Paris, said to be necessary because certain prohibited opinions "are now being disseminated not only in the University, but also in the rest of this city and in certain parts of the kingdom, either by strangers, or also by people within" (cited in Schmaltz 2002: 29). The fact that the *Considerations* was among the disseminated works is indicated by Clerselier's report of a meeting he had with the Paris archbishop in December 1671, at which the latter singled out "a certain writing published by a Benedictine religious" (namely, Desgabets) as the source of "the troubles between the theologians over difficult and intricate questions" (Clerselier 2009: II.104). To be sure, the royal decree itself mentions neither Descartes nor his followers. However, the Sorbonne issued a declaration in support of the decree that indicates that it is directed "*contra Doctrinam Carthesi*",[28] and the decree itself was cited throughout the 1670s and into the 1680s as the reason for restrictions on the teaching of Cartesianism in French universities and religious orders.[29] The route that began with Clerselier's forwarding of the Mesland manuscript to Desgabets thus ended with the first official condemnations of Cartesianism in France.

5. After Clerselier

Toward the end of his life, Clerselier had a plan to publish what remained of his collection of Descartes's manuscripts in a fourth volume of the *Letters*, perhaps including even the correspondence with Mesland on the Eucharist that he had earlier suppressed. This plan was never realized, though Clerselier did bequeath the manuscripts to Jean-Baptiste Legrand along with an ample sum of money to cover the costs of the production of the final volume. However, the recent accessibility of original letters from Descartes to Mersenne and other correspondents gave Legrand the idea of publishing a completely (p. 316) new edition of Descartes's writings that includes a biography of the philosopher. The sole result of this grand plan was the production of the biography, for which Legrand commissioned Adrien Baillet.[30] Baillet's *Life of Descartes*, published in 1691, depends heavily on the material that Legrand received from Clerselier. Clerselier himself features prominently in this *Life*, and Baillet explicitly takes Clerselier's side in his previously mentioned dispute with Regius. Baillet notes that though he was (after Descartes's Utrecht friend Henri Reneri) "the first Disciple of Descartes", Regius later "resolved to sacrifice the honor of his Master for his own" in publishing his *Foundations of Physics* (Baillet 1970: II.21 and 269). Baillet adds that "Aristotle perhaps never carried his ingratitude so far toward his master Plato", and that "Maximus the Cynic has never treated his master Gregory of Nazianzus with more insolence" (II.271). Regius's insolence and ingratitude are reflected in the fact that he was "the first plagiarist of Descartes" who also was "the first rebel among his disciples, or the first schismatic among his supporters" (II.171).

Baillet thus places Regius outside of a Cartesian movement that has Clerselier as its "second author" after Descartes himself (II.242).

There were some objections that Baillet's massive work (over a thousand pages in two volumes) was too larded with references to be readable. In response, Baillet published an abridged version without the references in 1692, and this abridgement was popular enough to be reprinted the following year. Baillet's *Life* also drew an immediate response from critics. For instance, the Jesuit Adrien Boschet, a critic of Baillet's plan to write a multi-volume life of the saints, claimed in 1692 that Baillet was trying "to make a saint of M. Descartes".[31] There was a further response from the anti-Cartesian Pierre-Daniel Huet, who published that same year his own satirical biography of Descartes, according to which Descartes survived his purported death and still teaches his philosophy to unwitting followers in Lapland.[32] Nonetheless, this sort of response serves to confirm the success of Baillet's *Life* in drawing attention to Descartes. In this way, the biography is a culmination of Clerselier's project of promoting widespread discussion of Descartes and Cartesianism.

While we have Baillet's biography, we no longer have access to the collection of manuscripts that he consulted in composing the work. After Legrand's death in 1704, this collection, which included 120 letters, was bequeathed to Étienne Marmion, a philosophy professor at the Collège de Grassins in Paris. When Marmion himself died the following year, the manuscripts were returned to Legrand's mother in Paris. They subsequently disappeared and, unfortunately for scholarship on Descartes and Cartesianism, remain lost to this day.

References

Agostini, Siegrid (2008), "La circulation des lettres sur l'Eucharistie: le 'cas' du Père Mesland", in Francesco Marrone (ed.), *Descartes et des Lettres: "Epistolari" e filosofia in Descartes e nei cartesiani*. Florence: Le Monnier università, 41–53.

Antoine-Mahut, Delphine (2016a), "Clerselier, Claude (1614–1684)", in Lawrence Nolan (ed.), *The Cambridge Descartes Lexicon*. Cambridge: Cambridge University Press, 126–8.

Antoine-Mahut, Delphine (2016b), "The Story of L'Homme", in Delphine Antoine-Mahut and Stephen Gaukroger (eds.), *Descartes' Treatise on Man and its Reception*. Cham: Springer.

Baillet, Adrien (1970), *La vie de monsieur Descartes*, 2 vols-in-1. Geneva: Slatkin. [Originally published anonymously in 1691 with a letter of dedication from "A. B".]

Belgioioso, Giulia (2005), "Un faux de Clerselier", *Bulletin cartésien XXXIII, Archives de philosophie* 68: 148–58.

Boschet, Antoine (1692), *Réflexions d'un Académicien sur la Vie de Mr Descartes, envoyées à un de ses amis en Hollande*. The Hague: Arnout Leers.

Caps, Geraldine (2010), *Les "médecins cartésiens": Héritage de diffusion de la representation mécanists du corps humain (1646–1696)*. Hildesheim: Olms.

Caton, Hiram (1976), "Les écrits anonymes de Descartes", *Les Études philosophiques* 4: 405–14.

Clerselier, Claude (2009), *Claude Clerselier: Editore e traduttore de René Descartes*, ed. Siegrid Agostini, 2 vols. Lecce: Conte Editore.

Descartes, René (1657), *Lettres de Mr Descartes où sont traittés les plus belles Questions de la Morale, Physique, Médecine et des Mathématiques*, ed. Claude Clerselier. Paris: Angot.

Descartes, René (1659), *Lettres de Mr Descartes Où spmt expliquées plusieurs belles difficultez, touchant ses autres Ouvrages. Tome second*, ed. Claude Clerselier. Paris: Angot.

Descartes, René (1662), *De homine figuis et latinitate donatus a Florentio Schuyl*. Leiden: Moyardum & Leffen.

Descartes, René (1663), *Lettres de Mr Descartes où sont traittés les plus belles Questions de la Morale, Physique, Médecine et des Mathématiques*, ed. Claude Clerselier, 2nd edition. Paris: Angot.

Descartes, René (1664), *L'Homme de René Descartes, et un Traité de la formation du foetus, du mesme auteur, avec les Remarques de Louis de la Forge, docteur en medecine*, ed. Claude Clerselier. Paris: Angot.

Descartes, René (1667), *Lettres de Mr Descartes Où il répond à plusieurs difficultez, qui luy ont esté proposées sur la Dioptrique, la Geometrie, et sur plusieurs autres sujets. Tome troisiesme et dernier*, ed. Claude Clerselier. Paris: Angot.

Descartes, René (1677), *L'Homme de René Descartes, et un Traité de la formation du foetus, du mesme auteur, avec les Remarques de Louis de la Forge. À quoi l'on a ajouté le Monde, ou Traité de la lumière du même auteur*, ed. Claude Clerselier, 2nd edition. Paris: Angot.

Descartes, René (1681), *Les Principes de la philosophie de René Descartes. Quatrième édition. Revue et corrigé fort exactement par monsieur CLR* [Clerselier]. Paris: Girard.

Descartes, René (2005), *René Descartes: Lettres*, ed. J.-R. Armogathe and G. Belgioioso, 3 vols. Lecce: Conte. [A reprint of the Exemplaire de l'Institut copy that is presumably the copy of Clerselier's 1667 edition used by Legrand.]

Descartes, René, and Henricus Regius (2002), *The Correspondence between Descartes and Henricus Regius*, ed. J. J. F. M Bos. Utrecht: Utrecht Department of Philosophy.

Dibon, Paul (1990), *Regards sur la Hollande du siècle d'or*. Naples: Vivarium.

(p. 318) Fabricius, Carolus (1648), *De Antidoto Primirosiano Epistola, Secunda editio, Priori auctior et emendatior*. Rotterdam: Isaci.

Faye, Emmanuel (2015), “Clerselier, Claude (1614–1684)”, in Luc Foisneau (ed.), *Dictionnaire des philosophes français du XVIIe siècle*. Paris: Garnier, 429–32.

Gouhier, Henri (1978), *Cartésianisme et Augustinisme au XVIIe siècle*. Paris: Vrin.

Huet, Pierre-Daniel (1692), *Nouveaux Mémoires pour servir à l’histoire du cartesianisme*. [No publisher.]

La Forge, Louis (1974), *Œuvres philosophique, avec une etude bio-bibliographique*, ed. P. Clair. Paris: Presses Universitaires de France.

Lemaire, Paul (1901), *Le Cartésianisme chez les bénédictins. Dom Robert Desgabets, son système, son influence et son école*. Paris: Felix Alcan.

Lennon, Thomas (2013), “Descartes’s Supposed Libertarianism: Letter to Mesland or Memorandum concerning Petau”, *Journal of the History of Philosophy* 51: 223–48.

McLaughlin, Trevor (1979), “Censorship and Defenders of the Cartesian Faith in Mid-Seventeenth-Century France”, *Journal of the History of Ideas* 40: 563–81.

Manning, Gideon (2012), “Three Biased Reminders about Hylomorphism in Early Modern Science and Philosophy”, in Gideon Manning (ed.), *Matter and Form in Early Modern Science and Philosophy*. Leiden: Brill, 1–32.

Mori, Gianluca (2016), “Cartesio in incognito: La ‘Prefazione’ delle Passions de l’âme”, in Carlo Borghero and Antonella Del Prete (eds.), *L’uomo, il filosofo, le passioni*. Florence: Casa Editrice Le Lettere, 172–94.

Poulain de la Barre, François (2011), *De l’égalité des sexes; De l’éducation des dames; De l’excellence des hommes*, ed. Marie-Frédérique Pellegrin. Paris: Vrin.

Regius, Henricus (1646), *Fundamenta physices*. Amsterdam: A. Elzevier.

Regius, Henricus (1654), *Philosophia naturalis*, 2nd edition [of *Fundamenta physices*]. Amsterdam: L. & D. Elzevier.

Regius, Henricus (1657), *Brevis explicatio mentis humanae*, 2nd edition. Utrecht: Trajecti ad Rhenum. [With a preface from “Carolus Fabricius”.]

Regius, Henricus (1661), *Epistola Henrici Regii ad V. Cl. Clerselierum JCtum Parisiensem*. Utrecht: Trajecti ad Rhenum. [With a preface from “Carolus Fabricius”.]

Ribard, Dinah (2000), “Cartésianisme et biographie: La critique de la *Vie de Mr Descartes* d’Adrien Baillet par le Père Boschet (1692)”, *Corpus* 37: 225–66.

Rodis-Lewis, Geneviève (1994), “Huet: Nouveaux mémoires pour servir à l’histoire du cartésianisme”, in Suzanne Guellouz (ed.), *Pierre-Daniel Huet (1630–1721): Actes du colloque de Caen*. Paris: Papers on French Seventeenth Century Literature, 183–96.

Roth, Léon (1937), “The Descartes–Huygens Correspondence”, in Raymond Bayer (ed.), *Travaux du IXe Congrès International de Philosophie (Congrès Descartes)*. Paris: Hermann et cie, II.101–8.

Schmaltz, Tad M. (2002), *Radical Cartesianism: The French Reception of Descartes*. Cambridge: Cambridge University Press.

Schmaltz, Tad M. (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. Oxford: Oxford University Press.

Sebba, Gregor (1982), “Adrien Baillet and the Genesis of his *Vie de Descartes*”, in Thomas M. Lennon, John M. Nicholas, and John W. Davis (eds.), *Problems of Cartesianism*. Kingston and Montreal: McGill-Queen’s University Press, 9–60.

Vernet, Jacob (1730), *Pièces fugitives sur l’Eucharistie*. Geneva: Marc-Michel Bousquet & Cie.

Notes:

([1]) For more on the *Letters*, see §2.

([2]) For more on Clerselier’s preface to the *Treatise on Man*, see §3.

([3]) Cf. the information about Clerselier and his life in Faye 2015 and Antoine-Mahut 2016a.

([4]) In particular, Descartes suggests the remedy of treating Clerselier’s epilepsy by making a deep incision to treat the gout in his toe, thus addressing the infection that Descartes takes to be the source of the difficulty.

([5]) Clerselier draws on this distinction in the preface to the second volume of Descartes’s *Letters*, when he distinguishes between “Metaphysical truths”, which “do not lead us to the knowledge of the existence of anything”, and “Metaphysical things”, which do provide the basis for such knowledge (AT V.760–1).

([6]) This is one of several reasons provided in the editorial comments at XI.296–7 against Baillet’s identification. The proposal here is that the “friend” was in fact Claude Picot, who prepared the French translation of Descartes’s *Principles of Philosophy*. For reasons to doubt this identification, see Mori 2016: 177–8.

([7]) For the claim that the internal evidence indicates that Descartes is in fact the author, see Caton 1976: 410–13.

([8]) This volume also includes a letter—a response to the objections of Roberval concerning motion in a plenum—that Clerselier had written, but earlier presented as Descartes's own at a 1658 session of the Montmor académie in Paris (see Descartes 2005: III.538–51). Clerselier explains in the preface to this volume that he did this in order to counter Roberval's charge that Descartes had not responded to these objections because he found them to be conclusive (III.12–14). For more on this letter and its context, see Belgioioso 2005.

([9]) Lennon 2013 offers a strong defense of the claim that in one important instance Clerselier mistook a memorandum that Descartes wrote to himself on the nature of freedom for a letter to Mesland.

([10]) See note 11.

([11]) In support of the claim cited at note 10, Roth has appeals to the purported fact that Clerselier doctored Descartes's letter to Constantyn Huygens of October 10, 1642, to indicate less of an attachment to this life than is indicated in the original letter (Roth 1937: 104). However, Dibon has countered that the differences between Clerselier's version of the letter and the original can be explained in terms of the editorial difficulties that Clerselier himself emphasized (Dibon 1990: 514–21). For more on these difficulties, see the helpful remarks in the editorial introduction to Descartes and Regius 2002: xxiv–xxxv.

([12]) For more on the tempestuous relation between Descartes and Regius, see Schmaltz 2017: 239–55.

([13]) Even so, there is one extant work that lists Fabricius as its author—namely, Fabricius 1648, a defense of Regius's physiological views.

([14]) Fabricius cites two letters from Robert Creighton, sent from Sweden to his friend Regius, that are appended to Regius 1657.

([15]) One can speculate that the addition of the translation of the preface was an attempt on Clerselier's part to pre-empt the need to consult a competing edition of Descartes's text. For more on the complex history of the publication of Descartes's *Treatise on Man* and of Clerselier's role in it, see Antoine-Mahut 2016b: 10–20.

([16]) On the various forms of occasionalism in post-Descartes Cartesianism, see Schmaltz 2017: ch. 4.

([17]) For further discussion of Cartesianism in the French academies, see Caps 2010: 162–243.

([18]) See the collection of Poulain's work in Poulain de la Barre 2011.

([19]) For the details of the reburial ceremony, see Baillet 1970: II. 439–44.

([20]) As indicated in McLaughlin 1979: 565–6.

([21]) See Manning 2012: 150.

([22]) For more on the different attempts to reconcile Descartes and Augustine in post-Descartes Cartesianism, see Schmaltz 2017: ch. 3.

([23]) The complete version of the letter was first published in Vernet 1730.

([24]) For more on Clerselier's circulation of the Mesland letters, see Agostini 2008. Several of the relevant documents are included in a collection in municipal library in Chartres (MS 366) that was damaged during bombings in World War II. However, the content of these documents is reproduced in the second volume of Clerselier 2009. Lemaire 1901 remains an important source of information about the role of Clerselier in the Cartesian controversies over the Eucharist; see especially Lemaire 1901: 99–133.

([25]) For the 1654 correspondence between Clerselier and Viogue, see Clerselier 2009: II. 222–89. In a 1671 letter Desgabets writes that "one of his friends" sent him copies of the letters "not less than 18 years ago" (cited in Schmaltz 2002: 38, n. 39).

([26]) For the correspondence between Clerselier and Bertet, as well as Fabri's censure and Clerselier's response, see Clerselier 2009: II.12–54, 117 and 118–20, respectively.

([27]) For Pastel's criticisms, see Clerselier 2009: II.132–7.

([28]) Cited in Schmaltz 2002: 30.

([29]) For discussion of the French condemnations of Cartesianism during this time, see McLaughlin 1979.

([30]) On the history of Baillet's involvement in this project, see Sebba 1982.

([31]) From Boschet 1692, cited in Ribard 2000, 239. In her article, Ribard provides a helpful discussion of the relevance to Boschet's critique of Baillet of the controversies over the doctrine of grace in the *Augustinus* of Cornelius Jansenius that were so prominent in France at this time.

([32]) Huet 1692, a work discussed in Rodis-Lewis 1994.

Tad M. Schmaltz

Tad Schmaltz is Professor of Philosophy and James B. and Grace J. Nelson Fellow at the University of Michigan, Ann Arbor. His areas of specialization are the history of early modern philosophy, the history and philosophy of early modern science, and the relations among philosophy, science and theology in the early modern period. He has as special interests the variety of early modern "Cartesianisms"; the influence of late scholasticism on early modern thought; the nature of the "Scientific Revolution"; and early modern versions of substance-mode metaphysics, theories of mereology, and views of causation and freedom.

Louis de La Forge on Mind, Causality, and Union

Philippe Drieux

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Abstract and Keywords

La Forge, who is well known for his *Remarques* on Descartes's *Treatise of Man* (1664), is also said to be one of the founders of "occasionalism", especially because of his argument against real causality in nature in chapter 16 of his *Treatise on the Human Mind* (1666). This leads one to think that causality is just a word for the order that God goes on creating in the world. But in fact La Forge merely intended to underline the power of Will, through the fact that any action on a mere part of matter is bound to the proper ability of Will to consider the whole of it.

Keywords: Louis de la Forge, occasionalism, continued creation, causality, mind and body, God

(p. 319) LOUIS de La Forge (1632–66) was a medical doctor and philosopher based in Saumur, France. He was born in La Flèche—the same town in the Loire Valley that housed the Royal College that Descartes attended in his youth—and moved to Saumur in 1653, where he practiced medicine until his untimely death.

La Forge was an important member of the second generation of French Cartesians, those active in the decades just after Descartes's death in 1650. He played an important role in the publication of the *Traité de l'Homme*, which was never published in Descartes's lifetime. He both supplied a number of illustrations for the 1664 French edition of this work, overseen by Claude Clerselier (a Latin edition had been published in 1662 by Florent Schuyl), and contributed a substantial philosophical and scientific commentary to the work.[1] La Forge's goal, as a philosopher and a physician, both in his images and in his extensive "Remarques", was not simply to faithfully follow Descartes's account of the human body in all its details (although this was an important consideration), but also to improve his mentor's system and its constituent parts by moving everything toward great internal consistency and, no less important, toward greater correspondence with the latest scientific and medical discoveries.

La Forge followed up his work on the *Traité de l'Homme* with his own *Traité de l'Esprit de l'Homme* (*Treatise on the Human Mind*), which he published in late 1665. In this treatise, a kind of sequel to the *Traité de l'Homme*—and arguably the first systematic presentation of the doctrine of occasionalism[2]—he sought to carry out a promissory note left unfulfilled by Descartes and provide a detailed account of the faculties and (p. 320) operations of the human mind and, just as important, an account of its union and interaction with the human body.[3]

In the letter to Montmor that opens his *Treatise on the Human Mind*,[4] La Forge calls for indulgence for his work. The beauty of matter, which is nothing other than "the most noble agent of nature", should take precedence over the defects of its composition. Moreover, he "does not fear the audacity" of saying that "the most cruel tyranny can neither restrain his desires nor force his will". His lack of fear leads him to assert that despite his entire dependence on God, he is not "subject to the authority of any prince", and that "God himself, from whom he has received being, and on whom he depends absolutely for his conservation, has left him entirely free in his actions" (*TEH* 71).

Having thus offered this formula as a preamble, La Forge seems to intend it as a way of warding off the danger of an interpretation that would place *all* efficacy in God by presenting him as the sole cause of *bodily* motion. Very significant here is La Forge's view of divine causality as "continued creation", which requires a warning to the reader as a kind of repair. Even so, this view creates a kind of unstable equilibrium that, according to Steven Nadler, accounts for all of the interest in the development of occasionalist thought (Nadler 2011: 123).

The imbalance between inactive bodies and active minds might pass for an imperfection in La Forge's system were it not possible to make it appear as a superior perfection. For the beauty of the union of mind and body comes precisely from the fact that it unites two very different entities:

> The union between mind and body is so admirable that I do not think that there is anything in the natural order of things that is more capable of causing astonishment and of revealing the greatness of the power and wisdom of God. (*TEH* ch. 13, 204)

Admiration linked to the disproportion of united things is capable of producing greater devotion. But a clear explanation of this union or "alliance" of mind and body would have other virtues. With respect to the difficulty of conceiving this alliance, La Forge notes that "it seems so difficult to conceive that this difficulty alone has made all those fall into error who believe that their souls are moral and material" (*TEH* 204). It is necessary not only to praise the greatness of God but above all to guarantee the *immortality of the soul* by means of a clear knowledge of the relation between the nature of the human mind and of the body to which it is joined. The difficulty comes from the fact that the union tends to make knowledge of the soul confused, in attributing to it some "virtual extension", or some "bond or cement" intended to allow it to act in the body despite the heterogeneity of their natures. Without thinking they therefore render the soul divisible in some way,

and thereby undermine the fundamental argument capable of assuring immortality.[5] This must be set in order, and La Forge seems to gather Cartesian material (p. 321) for this purpose. He readily admits that Descartes "did not place it on the frontispiece of his Meditations" (*TEH* ch. 7, 139). By placing the notion of the immortality of mind in the foreground, La Forge subordinates the union or bodily causality to it.

But the position of La Forge in the history of occasionalism is often considered from the perspective of his conception of the communication of bodily motion.[6] The famous thesis of chapter 16 of his *Treatise*, according to which "it is God who is the first, universal and total cause of motion" (*TEH* 241), somewhat obscures the other issues in this work.[7] But it is risky to go from body to mind, since it is precisely this methodology that has prevented us from reaching a true knowledge of mind. La Forge notes that such knowledge

> has not arisen because of the difficulty of the matter, which is above the senses, but also because the chief concern to consider the relation between the mind and the body to which it is joined has rendered knowledge of what it is in oneself more difficult. Because in not distinguishing the force that the body has to move itself from that by which some bodily motions are submitted to the will of mind, some have believed that the mind is a body, or at least the harmony or a motion of a body. (*TEH* ch. 3, 111)

To start from the body is to misunderstand the nature of the soul, and to make it a kind of "harmony or motion of the body", as in the view of the characters in Plato's *Phaedo*. The first concern is therefore to recognize the immortality of the mind, by means of a distinct knowledge of its nature, before passing to a consideration of the union, which must be compatible with this recognition:

> They would nevertheless have been able to get rid of these errors quite easily if leaving for a time the consideration of the body, they would have stopped to look at what the mind is in itself, before examining the manner of its union with body: for whatever this union may be, *it cannot prevent [the mind] from being what it is*. (*TEH* 111)

In other words, and as the passage above indicates, it is necessary to show that the union adds precisely *nothing* to the mind. This *nothing* is as difficult to believe as it is to establish, since among the writings that are ready to attribute to the soul some "extension in power", it is not entirely excluded (oh stupor!) that we can count certain texts of La Forge's master, Descartes.[8]

We will attempt to show that the question of the communication of motion in extension is fully in line with this argumentative strategy. Though God is the cause of motion in bodies, it is neither because he must conserve not only extension but also its modes, nor even because of the essential passivity of extension, but because any force whatsoever must first proceed from a *universal* will.

(p. 322) 1. The Activity of Mind

In his *Treatise* La Forge claims that showing the immateriality of the mind is the "most important point of the whole work" (*TEH* 111). From this property it follows that the mind is a spiritual substance, the whole nature of which is only and always to think. Thought is understood as the *essence* of mind, and as *consciousness*, that is to say "the inner testimony (or feeling) by which the mind is informed of all that it does or undergoes" (*TEH* ch. 6, 134). Thinking substance is always determined by a certain form that constitutes an idea, and it does not cease to produce these ideas insofar as it cannot cease to *act* as substance. In the same way as every body is actually extended and not only capable of being extended, mind is not only the faculty of thinking: "It is necessary that [the mind] always has some thought while it exists, which occupies it, which maintains it, and which supports its life" (*TEH* 136).

As shape terminates the body in act, an idea, insofar as it is the form of thought, determines the mind.[9] The mind is thus essentially active, and this activity can be described as life. Having no reason to cease except by annihilation, this life makes a claim to immortality. Although Descartes has not placed this consequence in "the frontispiece of his Meditations" (*TEH* ch. 7, 139), the substantial distinction of mind from body suffices to establish it, because the only reason that can make us doubt this immortality is a poor conception of the union, and the idea that the body could make the soul suffer.[10] The simple and indivisible character of mind assures it of a full resistance to anything that might destroy it. The argument is as ancient as the *Phaedo*. The mind will "always be stable and subsist eternally" (*TEH* ch.7, 144). The simplicity of the soul also indicates the fact that it is not composed of parts and that quantity cannot be applied to it in any way, unlike the body:

> According to this meaning, it is evident that every body is mortal, because we can consider it as a whole by reason of the parts of which it is composed, which are not so closely related that they cannot be divided; and quite the contrary, every mind, that is to say, every substance that thinks is immortal insofar as it is composed of no parts. For we do not ask whether it can be separated from the body, or deprived of some quality that perfects it, such as joy or the grace of God, but only whether, looking at it as a whole, it can be destroyed by the dissolution of its parts, which it not only lacks, not being extended, but it is not even possible to imagine any, because we have never conceived a half or third of a mind. (*TEH* 144)

(p. 323) Understanding and pure will pertain to the simple nature of mind, and are as "streams that flow constantly from thought, and that are inseparable from mind".

The theory of knowledge confirms this simplicity of the mind as such.[11] Inspired by the *Dioptrics*, the start of the *World*, and the *Comments on a Certain Broadsheet*, this theory insists on the fundamentally active character of mind, even in sense perception. The radical distinction between "idea" and "bodily species", increasingly specified by Descartes,

leads us to see in the bodily species only a certain local motion, associated by institution with an idea, in the same way that a word can be associated with its meaning (*TEH* 169).

The mind is at first only an activity of thought, which can certainly be hindered, but which nonetheless produces its ideas. The limits of the will proceed not from the real action of the body on mind, which is only an "equivocal" cause, but from its constitutive limits, instituted by God. Objects are not the proximate causes of our thoughts.[12] Inasmuch as it has just been confirmed that the mind does not need the body to be what it is, and that its determinations come first of all from itself and its own nature, it becomes possible to have a lucid apprehension of the status of the union.

2. Duration, Place, and the Immensity of God

Before examining the union, La Forge considers it indispensible to discuss duration and place. Though this discussion could be judged to be Scholastic, it provides the true metaphysical framework required to define the conditions of the possibility of the union between a mind and a body. Not that space and time themselves are the conditions; on the contrary, the exposition deduces from the very being of things their relation to time and place.

Thus duration belongs to the finite existence of creatures as such. In explaining this point, La Forge appeals to the thesis of continued creation:

> [Duration] belongs to mind and to body in the same way, because both not being from themselves, each of them needing the sovereign being to produce them, not only at the first time of their creation, but also in every moment that it perseveres in being, their duration can be nothing but a continual reproduction by means of which they persevere in their existence for as much time as it pleases the Creator to conserve them. (*TEH* 199)

(p. 324) Continued creation is mobilized to explain the nature of creatures, which corresponds to their proper existence. The imperfection of nature imposes on the creature a successive existence. The combination of possible determinations of a finite being cannot produce itself at the same time; there necessarily is change. Only God can lay claim to simple eternity, while the created world has access only to sempiternality or "posterior eternity" (*TEH* 199). The eternal existence of God, which is opposed to creatures as the center is opposed to the surface of a circle, is simple. In it, there is neither before nor after, no duration, no composition. The center is indivisible and immobile, *tota simul*. As finite creatures, body and mind necessarily have the same duration, as successive existence.

But place cannot be so equally attributed to minds and bodies:

> It follows clearly from that that one cannot say that mind can itself be in any place. It cannot be in the interior place; because having no extension, it has no

> way to fill any place; and if it fills none, what situation and what position can it have among bodies? (*TEH* ch. 12, 201)

Place is not really predicable of mind. The maxim that says that "all that is occupies a certain place" has no other foundation than the "bad custom" of "the people", as "doctor Clauberg" has emphasized (*TEH* 202). The only reason that makes place predicable of mind is the fact that it is allied with a body:

> However, when we consider the mind as being joined to a body, we can say that it is in one place rather than another due to this union; because it is not possible that the body to which it is united does not occupy some space, and does not hold some position and keep some situation among other bodies. But when we say that the mind is in such a place, and not in another, that must not mean anything other than that this mind is allied to a certain body, and not to another. Because outside of this union, whether or not there are bodies in the world, it is not possible to conceive that a substance, the whole essence of which consists in thinking, can be in a place, either definitively or circumscriptively [*neque definitive neque circonscriptive*], or that its thought can make it occupy a space or give it any position. (*TEH* 201)[13]

Only the union *gives* the mind an arrangement (a *rank*) and can localize it. This is to reduce away any attempt (or temptation) to make the mind something that is co-extended with the body. The mind cannot intervene as such in extension because there is for it neither *order* nor *position* that places it among extended things. There is thus no need to invent a way of making the mind able to act at a certain place in extension. Their absolute difference in no way prevents mind and body from being able to be united, and all of the intermediate categories used to think of the union, such as "virtual extension" or "moving force", must be conceived not as the *conditions for* but rather as the *effects of* this union.

(p. 325) In order to show that place does not apply to the mind as such, La Forge relies on the results of the Dutch Cartesian school, a sign that this is a real dogmatic issue. Clauberg as well as Heereboord are invoked. The former showed that one cannot affirm that what exists nowhere does not exist at all. For the latter, though the finite mind corresponds to a certain determined part of the immensity of God, this integration has absolutely nothing that is quantifiable of, a fortiori, spatial. The position of the mind in the immensity of God has nothing to do with any position in extension:

> But we must be careful not to conceive [the immensity of God] as an infinite extension, which contains an infinity of real or virtual parts. Because God has no extension, and this way of regarding the immensity of God comes again from the bad custom of conceiving nothing that is not extended. (*TEH* ch. 12, 203)

The issue is not secondary, not only because it mobilizes scholarly resources, but also because it provides a metaphysical reminder essential to the proper comprehension of the specific relation of bodies and minds to the immensity of God.

> The immensity of God is nothing other than his omnipotence, by which he is present to all creatures *in general*, because he produces and conserves them; he is present to bodies *in particular*, because he reaches them and contains them, arranges them, moves them or stops them; and to minds *in particular*, insofar as he assists in all of their thoughts, and concurs in all the determinations of their wills. (*TEH* 203)

The way in which God maintains minds and bodies by his omnipotence and his immensity is not different *in general*, but it becomes so *in particular*. Whereas he extends and contains, arranges, moves, and stops bodies, according to the arrangement he assigns to them and that determines their place, according to their passive nature, he *assists* in all *thoughts* and *concurs* in the *determination* of the wills of minds.

The finite character of the mind is explained by the *determination* of its operations, and not by some "shape" conceived as *partes extra partes*. Mind is simple in relation to body as God is simple in relation to all creatures.

Chapter 12 of the *Treatise* indicates that the correct starting point for understanding the relation of mind to God is not the thesis of continued creation, but rather the "position" of the mind in divine immensity. It is because the mind cannot be localized in itself that it cannot serve as a local force in a body. Indeed, it turns out that moving force derives not from any local power, but only from God as a universal cause.

3. Moving Force and Causality

Chapter 16 of the *Treatise* would suffice to convince us of the relation between the idea that God is the sole cause able to produce motion in extension and the idea that continued creation extends to modes of bodies:

(p. 326)

> But not only can [this informed mass] not itself change its situation; I hold also that there is no spiritual or corporeal creature that can make it change, nor any of its parts, in the second instant of its creation, if the Creature does not do it himself. Because it is he who has produced this part of matter in place A for example, not only is it necessary that he continue to produce it, if he want it to persevere in being, but also, as he cannot create it everywhere, nor outside of every place, it is necessary that he himself place it in place B if he wants it to be there; because if he placed it elsewhere, there would be no force capable of removing it from there. (*TEH* 240)

We see that La Forge seeks to establish that the existence of different bodies and motions in extension has as a condition the divine will, which would need to consent to and make possible any purported activity of local force. In fact, however, "the extension in which consists the nature of body in general, and that is the sole quality that remains in it in this state, is not active", and we do not see how it could by itself overcome this essential inac-

tivity. The intrinsic inactivity is related to continued creation. The passivity and radical contingency of matter seems to imply a “cinematic” conception of motion and of the causality of God, according to which God must successively “re-create” matter at each moment.

But how is it that the strong metaphysical thesis of continued creation does not apply, at least as a hypothesis, to the modes of mind in duration? And why does La Forge ignore the relevance of this application, even though it seems to lead him back inevitably to the full-fledged occasionalism that—according to the report of Gousset, at least—he cherished in his youth?[14] Thus is La Forge at some distance here from his starting point.[15]

It is undeniable that the argument leads to an occasionalist position with regard to bodies.[16] But the problem of chapter 16 is at least as much that of knowing “how mind and body act on one another” as that of the communication of motion in extension. The two questions are joined in that they both involve the idea of a “moving force”, that is to say, the idea of a local power as the first cause of motion. It is precisely *this* notion that is in the crosshairs because it creates as many difficulties as it solves. It is not that it is absolutely inconceivable:[17] the text evokes the hypothesis of a moving force as great as one would like, capable of intervening locally in extension to set it in motion and to diversify it. But in any event the global resistance of matter would render this force useless, because it is necessary that motion takes place in matter *everywhere at the same time*.

> Let us think even that if God gave to this body A, taken in particular, the whole force of motion that he uses now to move all of nature, it would not be enough with all of this to make it change its place, for the reason that it could not surpass the resistance (p. 327) of the rest of matter, which we suppose to be in repose, only because in order for the body A to be able to leave its place to enter that of another, it would be necessary that in the same instant that body A began to move, this other began also to change its place, it being impossible that the first can enter into the place of the second if, at the same time it makes the effort, the second does not leave and enter into that of a third, and the third into that of a fourth, and so on. But by what means could this be done where everything is at rest? And hence whatever force God gave to body A to move, it would be useless. (*TEH* 241)[18]

Whether moving force belongs to a corporeal or spiritual creature, it cannot possibly be efficacious in nature as a first cause. To think of motion, a “circle of bodies” is necessary first of all, as the cited text has shown. But more fundamentally, what is at issue is to know how matter, a created and indeterminate reality, can deploy in itself the succession of these events:

> This is why when God has resolved to move matter differently, he had to use the force that he wanted to put in it, on several of its parts at once, so that they could give way to each other at the same moment, without which no motion could have been produced, and also make it the case that this force passed successively from

> one body to another, that is to say, apply itself successively to the various parts of matter to satisfy the laws that he himself has prescribed. (*TEH* 231)

It is necessary to establish in matter a *reason for succession*. Left to itself, matter cannot diversify itself, because it is in itself indifferent.[19] It therefore is necessary to establish among its parts a *disposition*, so that these parts themselves exist and can move. What is required here is an order, that is to say a *total and universal* cause of motions:

> Let us conclude secondly that it is God who is the first, universal and total cause of motion; and that as it has been necessary that he used his omnipotent Word to pull out of nothing the whole of nature, it is also by means of this Word that he has pulled this same nature out of chaos, in producing motion in it. And as it would return to nothingness if he ceased to pull it out at each instant that he conserves it, it would also go back into its first confusion if he did not sustain the motion he has produced. (*TEH* 241)

The various parts of the expanse of extension must be arranged all together in order to bring about motion and diversity, and this order can be conceived only from the whole to the parts, and not the parts to the whole. What is as necessary to motion as the **(p. 328)** distinction of the parts of matter is a “word” of God, just as necessary to draw matter out of nothingness as to make it escape from its native indetermination.

But though “this force with which [God] has agitated the different parts of matter” is not in itself divisible and cannot increase or diminish, which is the deep reason for the conservation of the quantity of motion, in its effects it can appear as differentiated and localized (*TEH* 242).The idea of a local moving force is an *effect* of our perception, which apprehends this force in its division and in its relation to particular bodies. The global divine legislation appears legitimately distributed in bodies. This means that it is perfectly permissible to consider creatures as causes, on the condition that they are not seen as little autonomous powers:

> And although in this way God is the *universal cause of all motions* that take place in the world, I do not fail to recognize bodies and minds as particular causes of these same motions, not in truth by producing any impressed quality […] but by *determining* and *obliging* the first cause to apply his force and his motive power to bodies on which he would not have exercised it without them, *following the manner in which it itself resolved to rule over bodies and minds*, that is to say, for bodies, following the laws of motion […] and for minds following the extension of power that he has willed to accord to their will. It is *in this alone* that consists the power that bodies and minds have to move. (*TEH* 242)

Moving force is only an effect of order. It cannot be local before being global. We cannot move matter from one point. The mind cannot move body by some impressed quality, moving force, or potential extension, not only because the mind has no disposition in ex-

tended nature, but also because it can only have one once the positions are established in extension itself!

The difficulty is ultimately the same and the homogeneity of the problems is evident: “And hence it is no more difficult to understand how a mind can act on a body and move it than it is to conceive how one body can push another” (*TEH* 242). But the issue is not to deal with the problem of corporeal causality by equating it with mind–body interaction, as the beginning of the chapter may lead us to believe.[20] Rather, the essential point is that force is not local, but arises from a will governed by an order. Yet some of the Cartesian disciples fail to see this point and have dangerously distorted the words of the master, “because they imagined this force like an accident or a real quality” (*TEH* 242). According to La Forge, the authentic thought of the master is to be found in article 36 of the second part of the *Principles*, in which it is clear “that this force passes from one body to another because God applies it successively to different parts of matter”, and it is (p. 329) necessary for us “to notice well these words” that “the first and most universal cause […] produces generally all the motions that are in the world” (*TEH* 243; cf. *Principles of Philosophy* II.36, AT VIIIA.61/CSM II.240).

4. The Union as *Nexus*

What concludes this analysis? Does the general metaphysical framework that informs La Forge’s analysis require a strong interpretation of the thesis of continued creation? It is indisputable that La Forge arrives at the modal causality of God in extension. God is in fact that sole cause capable of explaining why bodies are divided and displaced. But it is less as a *support* than as a “universal cause of all motions in the world” that this power intervenes. And this intervention is not due so much to the primary inactivity of matter, which one might possibly be able to imagine being moved by a certain force. Rather, the need for this intervention is due to the impossibility of conceiving of something as a “local force”, not only because it would immediately become an accident or an occult quality, but also because it would be devoid of all efficacy in a plenum.

The appeal to the efficacy of God is thus explained not by the ontological imperfection of matter, from which mind would be saved by the fact that it is held to be simple and active, but because it is necessary to distinguish between the power to arrange—a word—and what cannot arrange itself alone. This power is not a simple local force. The will acts by order and legislation, and not punctually and capriciously.

The general metaphysical framework mentioned previously thus seems rather to be borrowed from the Scholastic names for God discretely infused into the discussion in chapter 12 on duration and place. Created things exist successively, and in what concerns extension, as *partes extra partes*. This requires a divine will and word that respond to an arrangement that can reconcile the way in which bodies and minds must coexist within the immensity of God. This primacy of order aims at and has the effect of invalidating the

idea of local moving force, or more exactly of making it appear as an *effect* or another *name* of the order to which the will of God is resolved.

The ultimate objective of this maneuver is to apply this conception of force to the union of the soul and the body in order to permit the full release of mind from any relation to divisibility:

> And by this means we will see that the force that the mind has to move the body, and that the body has to excite in the mind different thoughts, *are the necessary consequences of this union*. Because after having shown that this union consists in this commerce and this reciprocal dependence of the motions of body and the thoughts of mind, it is easy to see that which has willed to unite them in this way *must have resolved at the same time to give to mind the thoughts that we notice come to us on the occasion of motions in its body, and to determine the motions of its body in the manner that they must be to be submitted to the will of the mind*. (*TEH* 244)

(p. 330) It is the wise government of the divine will that provides the reason for the effects of power that we take to be causes since we are prisoners of the initial findings of our experience.

As many have noted, this conception of the union is close to that of Clauberg. The reciprocal commerce between two entities, conceived as a voluntary and in some way *contractual* alliance between two estranged realities, the union of which implies no essential intrinsic relation, recalls very directly the version institutionalized by Clauberg in *Body and Soul Conjoined in Man* (*Corporis et Animae in Homine Conjunctio*).[21] The union is a contingent and provisional *nexus*, the *clauses* of which must be examined at length in order to distinguish them from all the other forms of union that would have been possible for the Creator. This union between the mind and the body is however presented in terms of the substantial form, though in a way that seems entirely opportune:

> After what I have just said here concerning the nature of the mind in general and in particular, and concerning the manner in which the mind of man is united to body, it seems to me that I can give a definition that clearly explains its essence, in saying that the mind of man is a substance that thinks, is capable, being united to the body of man in a manner that suits its nature, to act and suffer with the body, and thus to be the form or the soul of the man, that is to say the principle of all the actions and passions that distinguish it entirely from all that is not. (*TEH* ch. 17, 247)

But this is only a formal recourse to the Aristotelian categories of form as substance. The soul is in no way the actualization of the body here. More relevant is the comparison of the soul to gravity that Descartes employed earlier (e.g. in AT VII.441–2/CSM II.297–8). Form is first of all a principle of action, by which the phenomena can be fully explained

without recourse to occult powers. But nothing essential relates the mind to the body. Their cohesion is only something provisional and contingent that “nothing prevents”:

> And let us say that [the mind] is able to be united to the body of the man because on the one hand, who can prevent it from having a certain thought at the same time as the body has such a motion? And besides, who can also prevent the body from being moved at the same time that the mind has a certain thought, and that all this occurs with a dependence on each other, and in the way that we have described, and that is peculiar to the very nature of man. (*TEH* 247)

The idea that the mind is the form of the man is of interest because it makes the mind the principle of all of the actions and passions of the composite. Despite having such an admirable organization, as Descartes’s *Of Man* and La Forge’s *Remarks* have emphasized, the body does not have to be treated equally with the mind. The body prevents the access of the mind to its best modalities: it largely removes from the mind the virtue of attention, and if the body gives it useful passions, they are not really for its own happiness. (p. 331) We can judge this Cartesianism to be problematic, so much does it seem to denigrate our passions and so ardently does it desire a life other than this one. We have perhaps learned to perceive and to follow other perspectives in Cartesian dualism. But it would be ill-advised to overlook the finesse and the rigor of the perspective of the physician of Saumur, as acute in physiological matters as in his understanding of the immensity of God.

References

Antoine-Mahut, Delphine (2017a), “Reintroducing Descartes in the History of Materialism: The Effects of the Descartes/Hobbes Debate on the First Reception of Cartesianism”, in Stephen Gaukroger and Catherine Wilson (eds.), *Cartesian Mind and Nature*: *Essays in honor of Desmond Clarke*. New York: Oxford University Press, 125–48.

Antoine-Mahut, Delphine (2017b), “The Story of Man”, in Delphine Antoine-Mahut and Stephen Gaukroger (eds.), *Descartes’s Treatise on Man and its Reception*. Cham, Switzerland: Springer, 1–30.

Clauberg, Johannes (1968), *Opera Omnia Philosophica*. Hildesheim: Olms.

Garber, Daniel (1992), *Descartes’ Metaphysical Physics*. Chicago: University of Chicago Press.

Garber, Daniel (1993), “Descartes and Occasionalism”, in Steven Nadler (ed.), *Causation in Early Modern Philosophy*. University Park, PA: Pennsylvania State University Press, 9–26.

Gousset, Jacques (1716), *Causarum primae et secundarum realis operatio rationibus confirmatur et ab objectionibus defenditur*. Leuwarden: Halma.

La Forge, Louis de (1974), *Œuvres Philosophiques*, ed. Pierre Clair. Paris: Presses Universitaires de France.

Le Ru, Véronique (2003), *La crise de la substance et de la causalité*. Paris: CNRS.

Nadler, Steven (2011), *Occasionalism: Causation among the Cartesians*. Oxford: Oxford University Press.

Nadler, Steven (2015), "Le problème corps-esprit chez Louis de la Forge: Un Guide pour les Égarés", in Sandrine Roux (ed.), *Le corps et l'esprit: problèmes cartésiennes et problèmes contemporaines*. Paris: Editions des Archives Contemporaines, 37–61.

Nadler, Steven (2017), "The Art of Cartesianism: The Illustrations of Clerselier's Edition of Descartes's *Traité de l'Homme*", in Delphine Antoine-Mahut and Stephen Gaukroger (eds.), *Descartes's Treatise on Man and its Reception*. Cham, Switzerland: Springer, 193–223.

Notes:

([1]) See Antoine-Mahut 2017b and Nadler 2017 for discussion of this edition and its illustrations.

([2]) For a discussion of various complexities and ambiguities in La Forge's occasionalism, see Nadler 2011 and Nadler 2015.

([3]) On La Forge's devotion to extending and completing Descartes's project, see Antoine-Mahut 2017a.

([4]) I cite the text in La Forge 1974; abbreviated hereafter as *TEH*, followed by (chapter and) page.

([5]) "There are others among even the disciples of M. Descartes who are persuaded that the alliance of the mind and the body occurs by means of a certain mode that they call union, which serves as the bond or the cement that joins these two substances" (*TEH* ch. 13, 237; 236 for "virtual extension").

([6]) Cf. Garber 1992: 299; cf. Garber 1993.

([7]) "Let us first look at the body–body context …" (Nadler 2011: 109). We discuss further the theses of Nadler's indispensible discussion.

([8]) Descartes to More, April 15, 1649, AT V.342/CSMK 372–3, where we find reference to the "extension of power" (*extensio potentiae*) of mind and the "coextension" (*coextensus*) of mind and body.

([9]) "It is the same with mind, which being essentially a thing that thinks, would cease to be if it ceased for a moment to think. And as the extension of a body in particular cannot subsist without being limited by some shape, so the thought of the created mind cannot exist without being determined by the form of some particular thought" (*TEH* 137).

([10]) “On the contrary, however strong and narrow the union of the mind and the body appears to us, as it cannot render them the same thing, we have more reason to believe, given the impediments that we sense that the body brings every day to the functions of the understanding, that death will set the mind free than to think that it must accompany the body in death” (*TEH* 139).

([11]) Cf. Nadler 2011: 134.

([12]) “Although it is the external objects or the first thoughts that give occasion to the will to determine itself and to form secondary ideas, this does not prevent the fact that one must say that it is the proximate and principal cause, lest it be said that it is the external objects that produce the ideas that we have of them, and not the mind” (*TEH* 178).

([13]) The Latin formula is borrowed from Thomas Aquinas, *Summa Theologiæ*, Part I, Question 52, Article 2: “*Deus autem neque circumscriptive neque definitive: quia est ubique*.”

([14]) For the report, see Gousset 1716.

([15]) Cf. Nadler (2011: 131): “Given the notion of creaturely dependence that the doctrine of divine sustenance is supposed to support, I do not see how there can be any asymmetry between the mind and the body here.”

([16]) Cf. Nadler 2011: 109.

([17]) As we will see further below, there is even a clear sense of this notion if it is considered as an *effect* and not a first cause.

([18]) Cf. Descartes, *Principles of Philosophy* II.33: “we must conclude that it is necessary that there is always a complete circle of matter or ring of bodies that move together at the same time” (AT IXB.81/CSM I.237).

([19]) “But if we can imagine other differences among bodies than those which I have just mentioned, it is, in my opinion, manifest that were motion removed from nature, we could no longer conceive of a distinction among bodies, as must as it is this that gives birth to all these differences” (*TEH* 239).

([20]) Cf. *TEH* 235 and especially 236: “This is the reason why I have said in the beginning that it was no more difficult to conceive how the mind can move the body than to know how one body can move another, *because in fact for both the one and the other it is necessary to have recourse to the same universal cause*, and as this is the most important point, it is necessary to speak of it to remove from the mind of many this unfortunate prejudice of believing that if their soul were not corporeal, it would not have the force to move the body” (my emphasis). On this point, see also the most enlightening second chapter of Le Ru 2003: 115–29.

([21]) See *Corporis et Animae in Homine Conjunctio* in Clauberg 1968. La Forge closely follows the developments in this text in his own exposition of the union, notably in *TEH* chs. 13–15.

Philippe Drieux

Department of Psychology, Rouen University

“He Has Created a Schism in Philosophy”: The Cartesianism of Géraud de Cordemoy

Fred Ablondi

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Abstract and Keywords

Géraud de Cordemoy (1626–84) was one of the most important Cartesian inheritors of the 1660s and 1670s. He was unique among Descartes’s followers in advocating atomism, and he was one of the first—if not *the* first—Cartesian occasionalists. Interestingly, he understood both of these positions to follow from Cartesian metaphysics, despite the fact that Descartes never endorsed the latter and explicitly rejected the former. He also accepted, with some modifications, Descartes’s real distinction between and union of the mind and the body, and developed Descartes’s thoughts on language use in significant ways. This chapter examines Cordemoy’s Cartesian-inspired arguments for both atomism and occasionalism, and discusses his thoughts on mind–body dualism and language use.

Keywords: Géraud de Cordemoy, atomism, occasionalism, mind–body dualism, language

(p. 332) GÉRAUD de Cordemoy (1626–84) was one of the most important Cartesian inheritors of the 1660s and 1670s. That there was a diversity of philosophical views embraced by the various thinkers we today group under the general heading of “Cartesian” is well known. But Cordemoy stands out as the only Cartesian atomist and one of the first—if not *the* first—Cartesian occasionalists. He also accepted, with some modifications, Descartes’s real distinction between and union of the mind and the body, and he developed Descartes’s thoughts on language use in significant ways. In what follows, we will look at each of these contributions in turn.

1. Atomism

In 1666 the Benedictine Robert Desgabets wrote to Claude Clerselier regarding a book Clerselier had recently sent to him. In the letter, Desgabets does not mask his opinion of the work and its author:

> Without thinking clearly, he has created a schism in philosophy, which is all the more considerable in that in one fell swoop he takes away one of the strongest pillars from the true philosophy and in doing so notably strengthens Gassendi’s position, which already looks like it can sustain itself and overpass Descartes’s, even though it may be the only philosophy from which the world can receive a general reformation. (Desgabets 1666: 686)[1]

(p. 333) To understand the source of Desgabets’s displeasure, we need to be aware that, despite the many debates among the Cartesians of the latter half of the seventeenth century, there was one point on which they almost all agreed, and that was the denial of atomism. The reason for this near unanimity is clear: Descartes himself explicitly rejected atomism, holding that “however many parts a body is divided into, each of these parts can still be understood to be divisible” (*Principles of Philosophy* I.26, AT VIIIA.15/CSM I. 202).[2] Central to Descartes’s philosophy is the belief that extension is the principal attribute, or essence, of body. Given that any extension can be divided (at least in thought, and so is divisible by God, if not by us), a body necessarily can always be separated into smaller extended parts. Thus, *pace* his philosophical rival, the atomist Gassendi, there can be no indivisible bodies. When we add to this Descartes’s position that extension, as an attribute, cannot exist independently of the substance of which it is the attribute, we rule out the possibility of a void in which putative atoms would exist, for where there is space, there must also be body.[3] It hence follows—seemingly uncontroversially—that for a Cartesian, the corporeal world is a material plenum that is divisible indefinitely.

Yet there was one Cartesian philosopher, Géraud de Cordemoy, a Parisian lawyer and author of the book that provoked Desgabets’s ire, who argued that atomism follows from Descartes’s metaphysics.[4] In his most important philosophical work, *Six Discours sur la Distinction et l’Union du Corps et de l’Âme* (*Six Discourses on the Distinction between the Body and the Soul*, hereafter *Six Discourses*[5]), Cordemoy begins with the following five assertions about bodies, which he defines as “extended substances” (*Six Discourses*, Discourse I, Cordemoy 1968: 95/Cordemoy 2015: 60): 1) there are limits to a body’s extension, and this limit is called its *shape*; 2) bodies are neither divisible into smaller bodies, nor can they be penetrated by other bodies; 3) a body’s relation to other bodies is called its *place*; 4) a change in this relation of one body to others is what we call *motion*; and 5) when there is no change in this relation, we say that the bodies are at *rest*. (p. 334) Cordemoy immediately follows these claims with five points of terminology concerning *matter*, understood as collections of bodies.[6] First, individual bodies, the extended substances he has just described, are each called *parts of matter*, and second, several bodies taken together are called a *portion of matter*. The third, fourth, and fifth points regard the names we give to these portions: when the parts are beside each other but unconnected to each other it is called a *heap*; when they are continuously changing their position the portion is a *liquid*; and when the bodies are at rest and cannot be separated from each other, it is a *mass*. But regardless of whether what we’re referring to is “a heap, a fluid, or massed together in such a way that it can be divided into several portions each similar to the others

without destroying any effect that results from their arrangement, it receives the name *matter*” (*Six Discourses*, Discourse I, Cordemoy 1968: 101/Cordemoy 2015: 65–6).

The basis for Cordemoy’s distinction between indivisible and impenetrable bodies, on the one hand, and finitely divisible collections of bodies, or matter, on the other, is his understanding of what it is according to Descartes for a thing to be a substance. It is in the first place to possess metaphysical independence. A substance is that which depends on nothing else (save God) to be as it is. Cordemoy’s thinking is that if extended substances could be divided into parts, they would then depend upon those parts to be what they are, and this would disqualify them from being substances. True substances, he concludes, are necessarily simple.[7] We thus have an a priori argument for atomism: if there are to be extended substances, they must be partless, i.e. indivisible.[8] If we are careful, we will recognize that it is only *matter* that can be divided, but not for the standard Cartesian reason that its essence is extension and any extension can always be divided. It is because matter is, properly considered, a collection of bodies. It is bodies that, while separable from each other, are indivisible in themselves, and they must be so.

Thus while Cordemoy believes that, as a matter of fact, bodies cannot be divided, a position we can describe as *physical* atomism, he also accepts a stronger *metaphysical* atomism, according to which bodies’ divisibility is precluded by their very nature as the ontologically fundamental corporeal units. Metaphysical independence and the indivisibility that it entails is in his view required for anything to count as a substance.[9] In holding this position, he is distinguishing himself from Descartes, for whom the essence of body is to be extended; for Cordemoy, what is of real importance is that the nature of individual (p. 335) bodies is *to be able*—that is, to possess metaphysically the potentiality—to be extended. As he writes:

> [O]ne and the same substance, considered in itself, cannot be divided; and that if *its nature is to be capable of extension*, then the moment that one conceives of it as extended one will have to grant that, because it is the same in all its extremities, none of these extremities are separable from it. (*Six Discourses*, Discourse I, Cordemoy 1968: 98/Cordemoy2015: 62, emphasis added)[10]

Thus, the actual physical existence of indivisible atoms is, while true, of secondary significance. The heart of Cordemoy’s atomism is the *concept* of material substances that are metaphysically independent of each other. If we stop at physical atomism, the existence of indivisible bodies is something that just happens to be true; metaphysical atomism, on the other hand, dictates the way that the concept of material substance *must* be.[11]

What is the error that has misled other Cartesians on this point? According to Cordemoy, it is an over-reliance on the senses, something that Descartes himself continually warned against:

> [B]ecause we have a very clear idea of body and know that bodies are extended substances, we indiscriminately join our notion of body to our notion of matter. We thus take a mass to be a body and believe that all that we see is but one and the

> same extension, and we therefore regard it as one substance. And because whatever we see thus extended is divisible, we so join the notion of what is extended to the notion of what is divisible that we believe that whatever is extended is divisible. (*Six Discourses*, Discourse I, Cordemoy 1968: 97/Cordemoy 2015: 61–2)

The bodies, which when collected together are the portions of matter that we observe in the world, are themselves too small to be perceived. The confusion to which we can easily fall prey is to mistake these portions of matter for substances, and then conclude that since *they* are divisible, substance is thus divisible. Again, it is bodies that are the true extended material substances, and as such, they must for Cordemoy be indivisible.

Against Descartes, as well as all of his fellow Cartesians, Cordemoy also maintains the conceptual consistency of a void. According to him, the “bodies that compose heaps, fluids, and masses are not everywhere so tightly packed that they do not leave some gaps in various places. … It is not necessary that these gaps are filled, and it is conceivable that there should be no body between bodies that do not touch each other” (*Six Discourses*, Discourse I, Cordemoy 1968: 103/Cordemoy 2015: 67). According to the picture painted (p. 336) by other Cartesians, if we imagine three contiguous bodies, and then suppose that the middle body is destroyed, the first and third bodies must, it was argued, collapse in an instant, or the space must be immediately filled by another body (such as the invisible body which separates the two sides of a vase), for there can be no truly empty space between them. This is because the distance between them would be of this or that length, and length is a modification of extended substance. As such, it cannot exist independently of the substance of which it is a modification. For Cordemoy, on the other hand, the status of the first and third bodies as substances means that they possess a metaphysical independence that allows them to remain in their original places, unaffected by anything the middle body does.[12]

Following this relatively brief argument for atomism, Cordemoy immediately turns to three problems (*inconveniens*) he sees facing Cartesians who reject atoms in favor of a plenum theory of body. The first of these is the distinction Descartes himself made between the *infinite* and the *indefinite*. Descartes had claimed in the *Principles of Philosophy*:

> Our reason for using the term ‘indefinite’ rather than ‘infinite’ in these cases is, in the first place, so as to reserve the term ‘infinite’ for God alone. For in the case of God alone, not only do we fail to recognize any limits in any respect, but our understanding positively tells us that there are none. Secondly, in the case of other things, our understanding does not in the same way positively tell us that they lack limits in some respect; we merely acknowledge in a negative way that any limits which they may have cannot be discovered by us. (*Principles of Philosophy* I. 27, AT VIIIA.15/CSM I.202)

But to this Cordemoy replies:

> When I asked [my opponents] if this substance that they believe to be divisible is divisible to infinity, which is where their assumption seemed to me to lead, they responded ‘no, but it is indefinitely divisible’. When I begged them to explain this indefinite division to me, they led me to understand it in the same way in which everyone understands infinity. (*Six Discourses*, Discourse I, Cordemoy 1968: 99/ Cordemoy 2015: 63)

Descartes’s distinction is between that which has no end as far as we can understand (the indefinite) and that which we clearly understand to be in fact without limit (the infinite). According to him, God alone is properly called “infinite”. Matter, on the other hand, is divisible indefinitely. Cordemoy’s claim is that upon closer examination the distinction (p. 337) ultimately collapses, and the Cartesians must admit to the infinite divisibility of matter, something he (for the reason discussed above) finds incompatible with the concept of material substance.[13]

The other two problems that Cordemoy believes his fellow Cartesians face in not accepting indivisible material substances have to do with individuation. Descartes held that corporeal bodies are individuated by their motion: a particular physical object is understood to be that quantity of matter which moves together, relative to other bodies. But such an understanding of a material individual implies for Cordemoy the absurd conclusion that “we cannot conceive of a body at rest between other bodies”. He explains:

> This is because on the supposition that this body is touching the others, this doctrine [of Descartes’s] teaches that it makes but one body together with them. However, it seems to me that we have a very clear and natural idea of a body perfectly at rest between other bodies, none of which is in motion, and what I have to say about body agrees perfectly with this idea. (*Six Discourses*, Discourse I, Cordemoy 1968: 99/Cordemoy 2015: 63–4)

Cordemoy’s point at the end of this passage is that he himself faces no such problem of individuation, given that the only true corporeal individuals are his indivisible bodies. What we, in speaking with the vulgar, refer to as individual material objects are, for him, properly called portions of matter—collections of bodies.

The other problem that Cordemoy sees facing those who adopt Descartes’s account of motion involves (what we want to call) one material object that has its parts moved in different directions at the same time, as, for example, in the case of the branches of a large tree being moved by a strong wind. On the Cartesian understanding of motion, we seem required to say that when these various motions begin, we at that moment have multiple objects before us when previously we had just one, inasmuch as the parts are changing their place relative to other neighboring bodies. As Cordemoy puts it, “if one believes that a body, as a portion of matter, must be divided as soon as its extremities are moved in different directions, it will follow that when surrounding bodies push a body this way and that, on opposite trajectories, they will end up dividing it in as many ways as it is being pushed” (*Six Discourses*, Discourse I, Cordemoy 1968: 99–100/Cordemoy 2015: 64). In other words, the Cartesian understanding of individuation of corporeal objects by their

motion will require us to say that what we call a single body is really as many individuals as there are portions of matter with different motions. On the other hand, Cordemoy points out again, no such troublesome issues arise once we posit indivisible bodies as the true corporeal individuals. Descartes may have thought that he could make his account of the individuation of material objects consistent with his belief in the indefinite divisibility of matter, but Cordemoy argues that he cannot. Such individuation, Cordemoy thought, called for something other than motion—for him, it required *les corps*.

(p. 338) 2. Occasionalism

Though Cordemoy was the lone Cartesian atomist, he was joined by Geulincx, La Forge, Arnauld, Malebranche, and François Lamy, among others, in embracing occasionalism, which attributes to God either some or all of the causality in the created world.[14] In fact, Cordemoy may have been the first Cartesian occasionalist, though if he was not, it seems that he came to occasionalism independently of others.[15] His argument for the need for God’s causal power to account for interaction between bodies is given in the Fourth Discourse of the *Six Discourses*. There Cordemoy presents a series of definitions and axioms, and then draws several conclusions from them. The first two axioms are that “A thing does not have from itself that which it might lose without ceasing to be what it is”, and “Every body can lose some of its motion, to the point of not having any at all, without ceasing to be a body” (*Six Discourses*, Discourse IV, Cordemoy 1968: 135/Cordemoy 2015: 93). From these, he concludes that bodies cannot have motion from themselves, that is, that motion is not contained in the essence of bodies, inasmuch as bodies that stop being in motion do not stop being bodies. If this is so, a second conclusion follows, according to Cordemoy: the first mover of bodies cannot itself be a body. As the first mover, it could not have gotten its motion from another body,[16] so it must have its motion from itself—but this has just been shown to be impossible for *any* body. When (p. 339) we consider the third of Cordemoy’s axioms, namely that there are only two kinds of substances, bodies and minds, the first mover must be a mind, since bodies have just been ruled out.

What gets us from here to occasionalism are the fourth and fifth axioms. The former states that the causing of motion is itself an action, and the latter adds that “an action can be continued only by the agent that began it” (*Six Discourses*, Discourse IV, Cordemoy 1968: 136/Cordemoy 2015: 94). From these it follows that the very same mind that first moved bodies must be the same cause that continues to move them. Cordemoy admits this may be hard for us to accept, since observation appears to show us that bodies are constantly causing other bodies to move. Once again, he cautions us to carefully consider exactly what the senses tell us and what they do not. Consider, he asks us,

> the case where one body B has driven body C from its place. If one examines carefully what is in fact known for certain in all this, one will find only that B was moved, that it encountered C, which was at rest, and that subsequent to this collision the first body ceased being moved and the second body began to be moved. But to think that one apprehends B giving motion to C is really only a prejudice,

> one that arises from the fact that all we see are these two bodies and the fact that we are accustomed to attributing all effects that are known to us to things that we perceive. (*Six Discourses*, Discourse IV, Cordemoy 1968: 137/Cordemoy 2015: 95)

Cordemoy is pointing out, as Malebranche and Hume would later do as well, that in restricting ourselves to what we observe, all we experience is one body’s motion, its collision with a body at rest, and then the motion of the second body. This perception of events temporally succeeding each other gives us the illusion of causation between the bodies, but, as Cordemoy feels his argument has demonstrated, this cannot in fact be the case. Only the first mover, itself a mind, can be the true cause of the motions of bodies.

But could *our* minds be the cause of the motion of bodies, at least of the motions of *our own* bodies?[17] Cordemoy thinks not. First, we know that our minds cannot affect our bodies in certain ways, either because our bodies are immune to such influence (e.g. I cannot will my muscles to grow) or because of old age or injury (e.g. a crippled man cannot will himself to walk). Further, as with body–body interaction, it may seem that we are the cause of our body’s motions, but reflection reveals that we never experience a causal connection but only temporal succession between our volitions at one moment and our body’s movement the next. Cordemoy also sees a problem lurking with regard to the conservation of motion, a basic principle of Cartesian physics. The worry is that if we could produce motion in bodies at will, “the quantity of motion in nature (p. 340) could increase, and thus the order of nature would be disrupted. For if only a certain quantity of motion was needed to establish this order, only exactly this same quantity is needed to conserve it” (*Six Discourses*, Discourse IV, Cordemoy 1968: 140–1/Cordemoy 2015: 98). It can only be, then, the first mover who is the cause of our bodies’ particular motions on the occasion of our willing those motions.[18]

3. The Mind and the Body

His atomism and occasionalism aside, when it comes to the relation between the human mind and body, Cordemoy argues along fairly traditional Cartesian lines. In the final two discourses, he describes both the union of (in the Fifth) and the distinction between (in the Sixth) the mind and the body. One difference of note, however, is that whereas Descartes went to some length to argue that the nature of the mind is to think, Cordemoy accepts this point as a given. Neither does he offer an argument that the mind and body compose a substantial union. Instead, he first gives an example—that the body moves on the occasion of the mind willing it to do so—that is meant to demonstrate that they interact, and then defines the union in terms of such interaction: to say that the mind and body are united *just is* to say that they interact (albeit as a result of God’s causal power).

With regard to the distinction between the mind and the body, Cordemoy first argues by examining what people mean—what concepts are involved—when they speak of “body” on the one hand and “mind” on the other. Reflecting on these concepts, Cordemoy observes that it is clear “that what I understand by the word ‘soul’ includes nothing of what I understand by ‘body’. Thus, I have reason to judge that these are two totally different

things” (*Six Discourses*, Discourse VI, Cordemoy 1968: 153/Cordemoy 2015: 109). Stated thusly, Cordemoy’s argument can be read as similar in spirit to Descartes’s argument for the real distinction in the Sixth Meditation. There Descartes argued that as thought is the principal attribute of mind and extension the principal attribute of body, and as minds in no way depend on extension and bodies in no way depend on thought, mind and body are distinct substances.[19] Immediately after the line just cited, however, Cordemoy slips into a distinct argument, one which more resembles Descartes’s argument in the Fourth Discourse of his *Discourse on Method* and its appeal to doubt:

> I see that even if I wanted to doubt all the things I conceive when I think of body, I could not at the same time doubt my own thought. Let it be false, if you will, that there is any body in the world, still, it cannot be that there is no thought as long as (p. 341) I am thinking. Now how can I believe that my thought is the same thing as what I call *body*, given that I can suppose that there is no body at all but I cannot suppose that I do not think, since the supposition itself is a thought. (*Six Discourses*, Discourse VI, Cordemoy 1968: 153/Cordemoy 2015: 109)[20]

Cordemoy argues in a very similar way that he can be assured of his—that is, his mind’s—existence, while the existence of his body, as well as all other bodies, must be taken as an article of faith.

4. Language

Cordemoy’s other important work was his *Discours physique de la parole* (1668), referred to by one scholar as the “Seventh Discourse”.[21] The topic raised at the outset of the *Discours* is the question of other minds. While I know that I am a conscious, thinking being, how, it is asked, can I be sure that other human beings are? Might it not be that though they look and act like me, they are in fact mindless automata who only behave *as if* there were intelligent thoughts behind their behavior? Like Descartes before him,[22] Cordemoy answers that it is one’s use of language—both in its complexity and its creativity—which assures me that another has a mind, because such communication cannot be explained on mechanical principles alone. Having reached this conclusion, Cordemoy decides that now that he can no longer “doubt that the bodies which resemble mine are united to souls, and since I am sure that there are other men than me, I think that I ought to look with care at what remains to be known about speech” (Cordemoy 1968: 209). Accordingly, the *Discours* then turns to this very subject.

Genuine language use, as opposed to the mere production of sound, is, claims Cordemoy, a matter of “giving signs to one’s thoughts” (Cordemoy 1968: 196). Language, he holds, is an artificial system of signs, and its purpose is to communicate one’s thoughts to others, with the words standing as the representatives of token ideas. It is precisely the creative aspect of language that requires the possession of a soul. Specifically, genuine speech requires two things: “the formation of the voice, which can only come from the body, and the signification or idea that is joined with it, which can only come from (p. 342) the soul” (Cordemoy 1968: 198).[23] As a testament to the significance of Cordemoy’s account

of human language production, one scholar has said of Cordemoy that he “picked up one of Descartes’s arguments—based on the lack of true speech among animals—and developed it fully; so fully, in fact, that after Cordemoy the point was given very little attention, as if subsequent authors considered this the last word on the subject” (Rosenfield 1968: 40).

5. Conclusion

This chapter has hopefully demonstrated that Prost was correct when he declared that Cordemoy’s “originalité est incontestable” (Prost 1907: 56). He was unique among the Cartesians in maintaining that atomism followed from Descartes’s own concept of substance, and he was perhaps the first to argue that Cartesian metaphysics imply occasionalism. At the same time, he is firmly in the Cartesian tradition, not only as evidenced by his treatment of the mind–body relation and his account of language, but by his occasionalism, and, paradoxically, even by his atomism. While he was viewed by some in his day as something of a traitor to the “Cartesian cause”, Cordemoy’s philosophy can be seen as consistently following from his understanding of his Cartesian commitments.

References

Ablondi, Fred (2005), *Gerauld de Cordemoy: Atomist, Occasionalist, Cartesian*. Milwaukee: Marquette University Press.

Ariew, Roger (2002), “Oratorians and the Teaching of Cartesian Philosophy in Seventeenth-Century France”, *History of Universities* 17: 47–80.

Clair, Pierre (1976), “Louis de la Forge et les origins de l’occasionalisme”, *Recherches sur le XVIIe siècle* 1: 63–72.

Clatterbaugh, Kenneth (1995), “Cartesian Causality, Explanation, and Divine Concurrence”, *History of Philosophy Quarterly* 12: 195–207.

Clatterbaugh, Kenneth (1999), *The Causation Debate in Modern Philosophy, 1637–1739*. New York: Routledge.

Cordemoy, Gerauld de (1968), *Oeuvres Philosophiques*, ed. Piérre Clair and François Girbal. Paris: Presses Universitaires de France.

Cordemoy, Géraud de (2015), *Six Discourses on the Distinction between the Body and the Soul* and *Treatise on Metaphysics*, trans. Steven Nadler. Oxford: Oxford University Press.

Desgabets, Robert (1666), “Lettre écrite à M. Clerselier touchant les nouveaux raisonnements pour les âtomes et le vide contenus dans le livre du discernement du corps et de l’âme”, in (p. 343) “Oeuvres philosophiques de dom Desgabetz, bénédictin de St-Vanne, procureur général de son ordre”. MS. Epinal 64, 685–99.

Garber, Daniel (1987), “How God Causes Motion: Descartes, Divine Sustenance, and Occasionalism”, *Journal of Philosophy* 84: 567–80.

Garber, Daniel (1992), *Descartes’s Metaphysical Physics*. Chicago: University of Chicago Press.

Garber, Daniel (1993), “Descartes and Occasionalism”, in Steven Nadler (ed.), *Causation in Early Modern Philosophy*. University Park, PA: Pennsylvania State University Press, 9–26.

Garber, Daniel, John Henry, Lynn Joy, and Alan Gabbey (1998), “New Doctrines of Body and its Power, Place, and Space”, in Daniel Garber and Michael Ayers (eds.), *The Cambridge History of Seventeenth-Century Philosophy*, vol. 1. Cambridge: Cambridge University Press, 553–623.

Israel, Jonathan (2001), *Radical Enlightenment: Philosophy and the Making of Modernity*. Oxford: Oxford University Press.

Lennon, Thomas M. (1974), “Occasionalism and the Cartesian Metaphysic of Motion”, *Canadian Journal of Philosophy* supp. I: 29–40.

Lennon, Thomas M. (1993), *The Battle of the Gods and Giants: The Legacies of Descartes and Gassendi, 1655–1715*. Princeton: Princeton University Press.

Mouy, Paul (1934), *Le Développement de la physique cartésienne 1646–1712*. Paris: Vrin.

Nadler, Steven (1993), “The Occasionalism of Louis de la Forge”, in Steven Nadler (ed.), *Causation in Early Modern Philosophy*. University Park, PA: Pennsylvania State University Press, 57–73.

Nadler, Steven (1994), “Descartes and Occasional Causation”, *British Journal for the History of Philosophy* 2: 35–54.

Nadler, Steven (1997), “Occasionalism and the Mind–Body Problem”, in M. A. Stewart (ed.), *Oxford Studies in the History of Philosophy*, vol. 2, *Studies in Seventeenth-Century European Philosophy*. Oxford: Oxford University Press, 75–95.

Pessin, Andrew (2003), “Descartes’s Nomic Concurrentism: Finite Causation and Divine Concurrence”, *Journal of the History of Philosophy* 41: 25–49.

Prost, Joseph (1907), *Essai sur l’atomisme et l’occasionalisme dans la philosophie cartésienne*. Paris: Paulin.

Rosenfield, Leonora Cohen (1968), *From Beast-Machine to Man-Machine: Animal Soul in French Letters from Descartes to Le Mettre*. New York: Octagon Books.

Schmaltz, Tad (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. Oxford: Oxford University Press.

Whitmore, P. J. S. (1967), *The Order of Minims in Seventeenth-Century France*. The Hague: Nijhoff.

Notes:

([1]) This passage from the letter is also quoted in Prost 1907: 158.

([2]) See also the *Principles of Philosophy* 2.20.

([3]) See the *Principles of Philosophy* 2.16–18.

([4]) Cordemoy does not use the word *atome*, speaking instead of *les corps*. It should also be noted that there are at least two other seventeenth-century philosophers who are occasionally referred to as both “atomist” and “Cartesian”, the Oratorian Fromentier and the Minim Maignan. Fromentier’s thought is known primarily from the report of his censure, which was imposed for his teaching of views properly considered Cartesian as well as those clearly non-Cartesian, including atomism, which he maintained could not be proven wrong (Prost 1907: 182). For more on him and his censured positions, see Ariew 2002. Although Fromentier is censured for (among other things) teaching atomism, Ariew claims that he, like Descartes, rejected atomism. More is known about Maignan, whose chief philosophical work, his *Cursus philosophicus* (1653), was influential not only within his Order in France, but in Spain as well. Yet if he is more clearly an atomist than was Fromentier, he is even less clearly a Cartesian. Not only did he reject Descartes’s plenum (though, unlike Cordemoy, for empirical rather than a priori reasons), he criticized Descartes’s views on light, magnetism, and the Eucharist. Perhaps most significantly, Maignan did not believe that a thinking substance was *necessarily* immaterial (and thus not *necessarily* immortal). On both his influence and the question of his Cartesianism or non-Cartesianism, see Whitmore 1967: 163–86 and Israel 2001: 529–33.

([5]) The *Six Discourses* was originally published in 1666 with the title *Le Discernement du Corps et de l’Ame en six discours pour server à l’éclaircissement de le physique*.

([6]) The First Discourse ultimately contains a total of twelve such points concerning matter.

([7]) Though Cordemoy will disagree with Leibniz that substances must be *spatially* simple.

([8]) While some scholars have held that in arriving at atomism, Cordemoy’s “reasoning is not altogether clear” (Garber et al. 1998: 586), his argument is in fact based on the very notion of what it is to be a substance—it is precisely the Cartesian understanding of substance that he believes precludes its being composed of parts into which it could be divided.

([9]) This view fits neatly with his occasionalism (to be discussed below) and the thought that no body is the cause of the motion of any other body.

([10]) The Jesuit Louis le Valois, writing under the pseudonym of Louis de la Ville, relates in his *Sentiments de Monsieur Descartes* (1680) that “Monsieur Cordemoy once told me himself that he did not believe that actual extension was the absolute essence of bodies, but only that it is essential for them ‘to be able’ to be extended” (quoted in Cordemoy 1968: 307).

([11]) For more on this point, see Lennon 1993: 138–40.

([12]) Robert Desgabets (1666) challenges Cordemoy on this point. According to Desgabets, not only is the existence of a void a contradiction—a *nothing* that *is*—but a nothing could not have any properties, including length. If the claim is that between two given points A and B there is only empty space, what is the length of the distance between the two points a length *of*? A void would seem to be, then, a metaphysical impossibility. While Cordemoy never responded to Desgabets, the Benedictine would seem with this point to have raised an important question for anyone holding atomism grounded upon Cartesian metaphysics. For a detailed consideration of Desgabets’s objections to Cordemoy’s atomism, see Prost 1907: 156–76.

([13]) The force of this objection depends, of course, on first accepting Cordemoy’s belief that admitting bodies as substances carries with it the necessary implication that they cannot have parts into which they are divisible.

([14]) Though occasionalism was not adopted in quite the same way and to the same extent by all of these thinkers; for a discussion of the variety of appeals to God’s causal activity in the world made by Cartesians, see Nadler 1993 and Schmaltz 2017: ch. 4. The latter correctly observes that “these Cartesians were no more unified around a particular form of occasionalism than other early modern Cartesians were unified with respect to several major issues broached in Descartes’s writings. What united the various Cartesian occasionalisms was rather a concern to develop and integrate certain themes from Descartes in a way that allows for the survival of a defensible Cartesian theory of causation” (Schmaltz 2017: 227). For the similarities and differences between the arguments for occasionalism given by Cordemoy and La Forge and Malebranche in particular, see Ablondi 2005: 60–75.

([15]) Jacques Gousset, an acquaintance of La Forge’s, claimed that La Forge was the first occasionalist, reporting that he had discussed La Forge’s philosophy of causality with him as early as 1658. Gousset’s claim is discussed in depth in Clair 1976. This question of priority is further complicated by the fact that Cordemoy tells us at the beginning of the Fifth Discourse that he had been discussing his theory of occasionalism with his friends for seven or eight years, that is, since 1658 or 1659, the same time that Gousset says that La Forge adopted the doctrine. Clair thinks, against Prost, that it is very unlikely that Cordemoy and La Forge were in contact with each other at that time. This also raises the question of whether Descartes was an occasionalist, and, if so, to what degree. In his *Treatise on Man* (written in the early 1630s though the original French version was not published until 1664), Descartes speaks in several places of causes which “give occasion”. See *Treatise on Man*, AT XI.144/CSM I.103, and AT XI.176/CSM I.106. The question

of Descartes’s occasionalism is discussed in Garber 1987, 1992, 1993; Nadler 1994; and Clatterbaugh 1995. Clatterbaugh 1999 and Pessin 2003 argue for Descartes’s acceptance of concurrentism, the doctrine that God concurs with the causal activities of secondary causes, making them genuine causes. Understood in this way, concurrentism is incompatible with occasionalism.

([16]) One could also argue—as it seems Cordemoy does—that as Cartesian metaphysics holds that token modes of a substance cannot be transferred to another substance (because they are not qualities distinct from that substance of which they are a mode), *no* body can give its motion to another body. See *Six Discourses*, Discourse IV, Cordemoy 1968: 138/Cordemoy 2015: 95.

([17]) In the Fifth Discourse, Cordemoy says that “when what occurs in the action of one body upon another body is carefully examined, it will not be found any more conceivable than what occurs in the action of minds upon bodies” (*Six Discourses*, Discourse V, Cordemoy 1968: 150/Cordemoy 2015: 106). Though it may be a commonly held view that occasionalism was adopted to provide an ad hoc solution to the Cartesian problem of mind–body interaction, Lennon (1974) and Nadler (1997) have convincingly shown that this was not the case.

([18]) Cordemoy gives an additional reason in the Fifth Discourse for why we must appeal to God to explain interaction between the mind and the body. Because the union of the mind and the body involves the interaction of essentially distinct substances with mutually exclusive essences, we must go outside that union to account for the ability of one of these substances to cause a change in the other.

([19]) Meditation VI, AT VII.78/CSM II.54.

([20]) If Cordemoy’s argument is that because he can doubt his body exists but cannot doubt his mind exists, his body and his mind thus have different properties (i.e. his body has the property of “being doubtable by him” while the mind does not) and so cannot be the same thing, it is guilty of committing the intensional fallacy. If, on the other hand, his point is that because he possesses a clear and distinct idea of himself as existing even while doubting that his body exists, nothing corporeal belongs to his essence, he is open, as was Descartes, to Arnauld’s objection involving the man who claims he can conceive of a right triangle while denying that the Pythagorean theorem is true of it. See *Meditations*, Fourth Set of Objections, AT VII.201–3/CSM II.142–3.

([21]) Mouy 1934: 106.

([22]) See *Discourse on the Method*, Part V, AT VI.56–7/CSM I.139–40.

([23]) Cordemoy remarks that the ability to merely make sounds can be explained on entirely mechanistic grounds, the process being very similar to how musical instruments produce sound. In this way, sound production is like nutrition, circulation, and respiration,

none of which, as Descartes had also believed, requires a soul, but which instead are the result of a proper disposition of one’s organs.

Fred Ablondi

Department of Philosophy, Hendrix College

Antoine Arnauld: Cartesian Philosopher?

Denis Moreau

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Abstract and Keywords

Nicknamed “the Grand Arnauld” by his contemporaries, Antoine Arnauld was a central figure in the intellectual life of the seventeenth century. This chapter presents a synthetic overview of the various aspects of Antoine Arnauld’s relationship to Cartesianism: his first exchanges with Descartes (in the Fourth Objections and correspondence), the “Port-Royal Logic”, and the numerous texts that he composed in the last years of his life, especially in his discussions with Malebranche, Leibniz, and the partisans of the doctrine of the “vision in God”. The chapter attempts to specify to what extent there is a “philosophy of Antoine Arnauld” and to determine whether Arnauld should be considered a “Cartesian” thinker.

Keywords: Antoine Arnauld, Malebranche, Leibniz, Cartesianism, vision in God

(p. 344) 1. Biography and Works

NICKNAMED “the Grand Arnauld” by his contemporaries, Antoine Arnauld (6 February 1612–8 August 1694) was a central figure in the intellectual life of the seventeenth century. Twentieth and last child of a family of magistrates, he seems for a time to have considered becoming a lawyer, but was ordained as a priest in 1641, after having studied theology and philosophy. In 1640, he wrote and successfully defended theses at the Sorbonne,[1] the philosophical content of which seems to have been influenced by the thought of William of Ockham (see Carraud 1995). The brilliant academic career for which Arnauld was probably destined was interrupted by his engagement on the side of the Port-Royalists in the furious theological disputes that followed the publication of the *Augustinus* of Jansenius in 1640. They resulted, in 1656, in the exclusion of Arnauld from the Sorbonne. From the 1640s to his death, most of Arnauld’s intellectual activity was devoted to writing several theologically polemical works designed to defend Jansenius, to uphold the theory of efficacious grace as it is found in Saint Augustine, to criticize the Jesuits and notably the laxism of their theological morality (Arnauld collaborated with Pascal in the

writing of the *Provinciales* in 1655–6), and, especially during the last part of this period of his life, to criticize the Protestants (*La Perpétuité de la foi*). After a lull during the 1670s (the "peace of the Church"), these polemics resumed and, being opposed to Louis XIV on the Régale affair, Arnauld went into exile in 1679 to the Netherlands, where he remained until his death.

His work is thus extremely abundant. It is collected (without strictly speaking being *œuvres complètes*) in forty-three large volumes in quarto (four of which are correspondence) of the *Œuvres de Messire Antoine Arnauld* (hereafter OA) published from 1775 to 1783 (p. 345) in Paris and Lausanne—commonly called "the Lausanne edition". Quantitatively speaking, the texts of Arnauld concerning philosophy represent, including correspondence, only four of the forty-three volumes of the Lausanne edition.[2]

The focus in what follows is on the philosophical aspect of Arnauld's thought, thus setting aside everything concerning the theological disputes in which he was engaged.[3]

2. Exchanges with Descartes

2.1. The Fourth Objections and Replies

In 1640, when he was still the young Arnauld, he was among the thinkers to whom Descartes sent the text of his *Meditations* to collect their objections. The exchange was, personally, warm and, theoretically, extremely fruitful in such a way that one can see here a founding episode of Arnauld's intellectual journey. Indeed Descartes estimated that his Objections, the fourth of those that appeared with the *Meditations* in 1641, were "the best of all those" that he had received, that their author, "more than anyone else, has entered into the sense of what [he has] written" (Descartes to Mersenne, 4 March 1641, AT III. 331/CSMK 175), and that he "could not wish for a more perceptive … critic of [his] book" (AT VII.170/CSM II.154).[4] For his part Arnauld confessed to being put "under the influence of pleasure" (AT VII.197/CSM II.138) by his reading of the *Meditations*, which, coming from the pen of an Augustinian used to holding forth on pleasures and delights of all kinds, is not a small compliment! From this moment, when Arnauld philosophized, he had the reputation of being faithful to the doctrine of Descartes. Even if the question of the degree of his adhesion to Cartesianism remains debated, as we will see, this singles him out among his companions at Port-Royal.[5]

The Fourth Objections of Arnauld (AT VII.196–218/CSM II.138–53) are divided into three parts: *Of the nature of the human mind*; *Of God*; and *Of the things that can cause difficulty to theologians*. In the first part, Arnauld first notes the convergence, remarkable in his eyes, between Saint Augustine and Descartes on the subject of the *cogito*. He then asks for clarification on the use of the criterion of clarity and distinctness, notably in establishing the real distinction between mind and body. The part concerning God is, theoretically, the most dense. With respect to the second proof of the existence of God provided in the Third Meditation, Arnauld asks Descartes to explain the claim that (p. 346) "God stands in

some manner the same way with regard to himself that the efficient cause stands with regard to its effect", that is to say, the idea, unacceptable for a Scholastic, that God not only exists through himself (*per se, a se*) but also is the efficient cause of himself (*causa efficiens sui*). If we consider that this emphasis, even when qualified, of the theme of divine self-causality is one of the major contributions of Descartes to the history of metaphysics (see Marion 1996: 143–82; Carraud 2002: 266–88), it remains the case that it is Arnauld who has seen and noted this. This led Descartes, in his Fourth Replies, to qualify what his earlier remarks could have been too crude in explaining, namely that, according to him, God is "in some manner" (*quodammodo*) the cause of himself and that he has used this notion in an analogical manner. Certain Cartesians, such as Spinoza, will not burden themselves with these nuances and will boldly proclaim that God is *causa sui*.

In the section devoted to "things that can cause difficulty to theologians", Arnauld, in a kind manner, asks Descartes to take several precautions to avoid misunderstandings of certain aspects of the *Meditations* that could in his opinion clash with Catholic orthodoxy: to temper the use of generalized doubt, pointing out notably that it does not concern the existence of God; to point out that this doubt relates only to what is an object of science, and not truths of faith; to better distinguish (cf. AT VII.46/CSM II.41: "which is the source of my error and sin") theoretical error (falsity) and practical sin (evil). Arnauld's objections close with a request for a clarification of the compatibility between the new conception of matter proposed by Descartes and transubstantiation as Catholic theologians conceive it.

The Fourth Replies of Descartes, well developed (AT VII.218–56/CSM II.154–78), provide the occasion to set out, without real equivalence in his other texts, important aspects of his thought, as we have seen with the example of the *causa sui*. Concerning what touches on the human mind, he stipulates that a clear and distinct idea does not necessarily give a "full and complete" knowledge (*adaequata* in the Latin, AT VII.220) of the thing of which it is the idea. He explains also his doctrine of the so-called "materially false idea" that had barely been sketched in the Third Meditation in explaining that, contrary to what the discussion of error there might have suggested, certain ideas can in themselves and independently of the judgment we make about them give us the occasion to deceive ourselves. Finally, concerning the "things that can cause difficulty to theologians", Descartes, manifestly cautious, provides elements of a "Eucharistic physics" intended to show the compatibility of his conception of matter with Catholic beliefs concerning the Eucharist (see Armogathe 1977).

2.2. The 1648 Letters

In 1648 there took place, on the initiative of Arnauld, a new exchange with Descartes (two Latin letters for each correspondent). The letters of Arnauld, which the Lausanne edition calls his "New objections against the Meditations of M. Descartes", were sent (p. 347) anonymously, and it is uncertain whether Descartes had guessed the identity of his correspondent, whom he nonetheless treated with great respect.

In the first letter (June or July 1648, AT V.185–91), Arnauld, who had clearly read previously the *Principles of Philosophy* published in 1644, presents himself as having "approved nearly entirely all that [Descartes has] written concerning first philosophy". He then resumes the thematic bipartition of the Fourth Objections of 1641: *Of the human mind*, then *Of God*, before returning to the question of the compatibility of the Cartesian conception of extension with the real presence in the Eucharist, and advancing a new theological objection on a question of physics. Regarding the latter, Arnauld is worried in effect that Descartes (*Principles of Philosophy* II.16), in holding "not only that there is no void in nature, but even that there cannot be one", seems "to derogate from the omnipotence of God". In the part of his letter devoted to the mind, Arnauld asks for clarifications of the manner in which Descartes conceives of memory and, correlatively, on a theme that had a great posterity in post-Descartes debates: "the soul always thinks". Is that to say that it always actually thinks? And how does it come to be in this case that we do not remember some thoughts? In the part devoted to God, Arnauld admits that he is perfectly convinced by the two proofs of the existence of God proposed by Descartes (the so-called "ontological" argument and the first proof by effects), but he asks for clarifications of the conception of time that, within the framework of the so-called "continuous creation" theory, underlies the second proof by effects. Descartes having rapidly responded (AT V.192–4/CSMK 354–6), notably in accepting the distinction between two kinds of memory, the one corporeal, the other intellectual, Arnauld returns to the charge (end of July 1648, AT V. 212–15). Descartes responds more completely (29 July 1648, AT V.219–24/CSMK 356–9), nonetheless prudently avoiding expanding on what concerns the Eucharist. He notably proposes, beyond the new reflections on memory, qualifications concerning the conception of thought and the nature of the relation between mind and body, by means of a distinctive comparison with "gravity". Finally, in response to the objection concerning the void and divine power, Descartes synthesizes in an extremely dense text his "maximalist" conception of the omnipotence of God in its relation to the so-called thesis of the "creation of eternal truths":

> But I do not think that we should ever say of anything that it cannot be brought about by God. For since every basis of truth and goodness depends on his omnipotence, I would not dare to say that God cannot make a mountain without a valley, or bring it about that 1 and 2 are not 3. I merely say that he has given me such a mind that I cannot conceive a mountain without a valley, or a sum of 1 and 2 which is not 3; such things involve a contradiction in my conception. (AT V.224/CSMK 359)

We do not know if there were any other exchanges, oral or written, between Descartes and Arnauld, but this last was often, as we will see, the occasion to return to the thought of the author of the *Meditations*.

In summary, this double and rich exchange with Descartes synthesizes perfectly striking features of Arnauld's personality and philosophical interests. We see at work (p. 348) there a vivid and sharp intelligence, endowed with an uncommon capacity (that the debates of the 1680s will confirm) to detect and discuss complex, or ambiguous, points of the doc-

trines of his interlocutors. Arnauld is very careful to separate what comes from faith and what comes from reason, in the name of the Augustinian maxim that he cites frequently (*Logic* IV.12, OA XLI.395): *quod scimus, debemus rationi, quod credimus, auctoritati* (what we know, we owe to reason, what we believe, to authority). He is concerned that one not place any limit on the omnipotence of God. He shows a true sympathy for the philosophy of Descartes, notably for all that concerns the theory of mind and of knowledge, of which he points out the convergences with the doctrine of Saint Augustine. He is particularly sensible of the elements of the Cartesian philosophy susceptible to apologetic use: the proofs of the existence of God, and the establishment of the real distinction between the soul and the body that provides, against the "libertines", an argument in favor of the immortality of the soul.[6]

3. Other Milestones of Arnauld's Philosophical Journey

3.1. Logic or Art of Thinking

In 1662 (the work was subsequently revised and augmented several times in re-editions, until 1683) Arnauld published, in collaboration with Pierre Nicole, and perhaps Blaise Pascal, what remains his best known work: the *Logic or Art of Thinking* (*La Logique ou l'Art de penser*), often called "Port-Royal Logic", probably written for the use of the young sons of the Duc de Luynes, who translated the *Meditations* of Descartes into French. The text is divided into four parts corresponding to the four principal operations of mind distinguished by its authors: conception, judgment, reasoning, and ordering (which is the function assigned to "method"). Outside of the considerations of the rather classical topics borrowed from Aristotelian logic, the work, written in French and manifestly drafted to reach (as the *Provinciales*) a wider public than that of specialists alone, is distinguished by the breadth of the theoretical fields it covers, and the large number of examples and anecdotes that make it pleasant to read. Among the most notable developments, one can note those of Part I on ideas and definitions, those of Part IV on belief and faith, and an extended reflection, which runs throughout the work, on the nature of signs. This text thus can be considered as a major contribution in the history of the theory of language and of semiology (see, e.g., Chomsky 1966; Foucault 1966: chs. 3 and 4; Marin 1975; Pariente 1985; and Gardies 2000).

Viewed globally and in light of the triple ambition to regulate the use of the mind to lead to the truth, to reveal error and its sources, and to clarify the nature of the human mind, (p. 349) the *Logique* presents itself as an art of thinking well that is developed in a philosophical atmosphere that is undeniably Cartesian (with several allusions to the *cogito*, the criteriology of clarity and distinctness, distinctions between primary and secondary qualities, etc.). It can thus be placed, with other attempts such as that of Clauberg (*Logica vetus et nova*, 1654), among the "Cartesian logics" destined to facilitate the study of the logic that Descartes (AT IXB.13/CSM I.186) had emphasized as the necessary preamble of

philosophy, though without himself writing the work that would have allowed it (see Ariew 2006 and 2015).[7]

Nonetheless, most of Arnauld's philosophical output is concentrated in the last ten years of his life, on the occasion of several discussions and controversies.

3.2. The Dispute with Malebranche

Starting in 1683 and until Arnauld's death, a long and bitter dispute that fascinated intellectual Europe, at the start at least, marked the great return of the "Grand Arnauld" to the philosophical scene. This dispute set him in opposition to his former "friend", the Oratorian Nicolas Malebranche.[8] It seems that the cause of the quarrel between the two men was the *Treatise on Nature and Grace* (*Traité de la nature et de la grâce*) that Malebranche published in 1680, and that proposed an audacious description of the modalities of the action of God as organized according to the "general volitions" that his Wisdom imposes on him, in the order of nature as well as in that of grace. Malebranche himself having explained that the epistemological condition of the possibility of the theses of the *Treatise* was the theory of knowledge called "the vision in God", it was natural that Arnauld started the dispute with a work in which he made a frontal attack on this theory of knowledge: the *True and False Ideas* (*Vraies et fausses idées*), which remains, with the *Logic*, the most well known of his philosophical texts.

The essence of the work consists in a reflection on what Descartes had called in the Third Meditation, without delving into the question much, the "formal reality" of ideas, their nature (and not, as Arnauld specifies, their origin). It fundamentally answers the question that Leibniz posed in 1684, in a short work presented as an intervention in the debate between Arnauld and Malebranche: *Quid sit idea?* (What is an idea?) Arnauld believes that Malebranche, in considering ideas as "representative beings" placed in God, accords them too much ontological weight, since he takes them to be a "third term", a *tertium quid* promoted to the dignity of "object" and interposed between the perceiving mind and the thing perceived. According to Arnauld, it suffices, to correctly explain a standard act of knowledge, to consider our ideas as "modifications of mind" that are not, insofar as they are such, distinct from our "perceptions": "idea" and "perception" are two (p. 350) ways of designating the same mental event ("to think of something"), the first connoting the relation to the object, the second the relation to mind. In this way, the "representative beings" that Malebranche postulates are, at best, superfluous and, above all, unintelligible. Arnauld establishes this thesis in the first half (chs. 1–11) of his work and then he returns to it, in a rather repetitive manner, in several texts written in response to the responses that Malebranche gave to *True and False Ideas*. In the rest of the work, Arnauld explains also, more rapidly, that the Malebrancheian thesis according to which we do not have a "clear idea" of our soul ruins the Cartesian doctrine of knowledge of the self (chs. 22–4) and that the Malebrancheian theory of knowledge invalidates the Cartesian proofs of the existence of God (ch. 26). In all of these texts, Arnauld presents himself as the defender of the doctrine of "M. Descartes", whose *Meditations* and *Principles* are abundantly cited. And his refusal to place our ideas "in God", as Malebranche has done, signifies a

categorical rejection of what a modern would call the univocity of knowledge between man and God.

Strangely enough, if we consider that *True and False Ideas* was, in the mind of its author, only a preamble to the refutation of the *Treatise on Nature and Grace*, this is the work of Arnauld that, with the *Logic*, has known the greatest posterity. In effect, the arguments mobilized to show the inconsistency of "representative beings distinguished from perceptions" that are ideas according to Malebranche have from the eighteenth century been used by thinkers who have seen in Arnauld a precursor of direct realism: this was for example the case with Thomas Reid, who refers to Arnauld repeatedly as a forerunner of his philosophy of common sense. In 1785, in the *Essay on the Intellectual Powers of Man* (II. 13: "Of the Sentiments of Antony Arnauld"), Reid explains thus that Arnauld, at least if he had pushed his reflection to the end, "totally denied the existence of ideas, in the philosophical sense of that word, and that he adopted the notion of the vulgar, who acknowledge no object of perception but the external object" (Reid 2002: 169). At the beginning of the twentieth century, *True and False Ideas* was again highlighted during a famous discussion between John Laird and Arthur Oncken Lovejoy. In the introduction to his work, *A Study in Realism*, John Laird revived in 1920 the reading of Reid and presented Arnauld as the precursor of the "realist" philosophy. A. O. Lovejoy replies, in an article that remains famous (Lovejoy 1923), that *True and False Ideas* promotes rather an alleged version of representationalism. This was the start of a rather lively exchange between the two authors (Laird 1924; Lovejoy 1924). The debate continues today and feeds on numerous contributions, some (the majority) believing, in line with Reid and Laird, that Arnauld's theory of knowledge tends toward direct realism, although others continue to attribute to him a representationalism that would be close to the doctrine of Descartes on these questions.[9]

Starting in 1685, in the second major part of his polemic with Malebranche, Arnauld attacks more directly the theses developed in the *Treatise on Nature and Grace*. A notable (p. 351) part of these debates deal with questions that are properly speaking theological, such as the nature of the efficaciousness of grace and the modes of its distribution by Christ: it therefore will not be considered here. But another part of Arnauld's reflections, notably in Book I of his monumental *Philosophical and Theological Reflections* (*Réflexions philosophiques et théologiques*), brings up natural theology. It is developed around the theme of "providence" and consists most often in a series of critiques, or refusals, of principal theses of Malebranche's *Treatise*: the refusal of the idea of a God acting by general volitions and without being able to deal with the details of a creation that the Oratorian consequently considered as "disordered" (based essentially on Augustine, Arnauld takes up the traditional theme of an ordered world); the refusal of any limitation to divine omnipotence, such as that implied by the Malebrancheian assertion that "his [God's] wisdom renders him impotent" (*Treatise* I.38), which manifestly scandalized Arnauld; the correlative refusal (that one will find at the beginning of the correspondence with Leibniz) of all that could constitute a "limit" placed on the "free will of God"; the insistence on divine incomprehensibility, in the technical sense that Descartes had given to this notion[10] and that does not signify that God is unintelligible to human reason, but rather implies the

maintenance of a strong transcendence relation between man and God. Finally, there is the idea, permanently recalled, that the conclusions of philosophy must not contradict revelation, following these

> excellent words of M. Descartes at the end of the first Book of his *Principles*: especially, we will take for an infallible rule that all that God has revealed is incomparably more certain than the rest; so much so that, if some spark of reason seems to suggest to us something to the contrary, we are always ready to submit our judgment to what comes from him. (*Principles* I.76, cited in OA XIV.226 and XXXVIII.91)

The philosophical part of these *Philosophical and Theological Reflections*, as well as other anti-Malebrancheian texts that will follow, thus undeniably develop a natural theology, assured on certain points (the existence of God, the nature of his freedom and his attributes), but showing also a form of timidity in the face of transcendence that can evoke that of Descartes: the refusal to discern the designs, the ends of God and to pronounce on them unless they have been revealed, the preservation of the idea of an ontological and epistemic distance between man, finite, and God, infinite. We have here therefore an original use of theological rationality, which approaches themes that Descartes had not explicitly treated (providence, miracles) while taking into account the biblical theme of the *Dieu caché* (Isaiah 45:15) to which Arnauld, as well as Pascal and his friends from Port-Royal, often return. The question remains to know the extent to which these texts can be read as a timid extension of the fundamental principles of Descartes's natural theology, and as an encounter between Cartesian metaphysics and Port-Royalist spirituality.

(p. 352) In any event, this gigantomachy opposing Malebranche to Arnauld remains one of the striking philosophical debates of the seventeenth century. It is of particular interest to lovers of Descartes, as it presents the fight between two authors claiming to be his followers, but in very different ways: Malebranche understands himself, not without speculative audacity, to exceed the Cartesianism that inspires him; Arnauld, much less intrepid, considers himself, at least with respect to the philosophy of knowledge, as the guardian of, or the eyewitness to, Cartesian orthodoxy.

3.3. The Correspondence with Leibniz

Leibniz and Arnauld met during the visit of the former to Paris, in the 1670s. In 1686, Leibniz sent to Arnauld—whom he held in high esteem and for whom he expresses a lively admiration[11]—the summary (that is to say, the titles of the articles) of the *Discourse on Metaphysics* (*Discours de métaphysique*) that he had recently composed. This was the beginning of a two-year-long correspondence that included five major letters from Arnauld.[12] The latter is shown above all to be anxious for the return of Leibniz, a Lutheran, to Catholicism, writing dryly, in his first letter: "Would it not be better for him [Leibniz] to leave behind these metaphysical speculations […] in order to apply himself earnestly to the greatest task he can ever have, which is to secure his salvation by reentering the Church?" (Leibniz to Hesse-Rheinfels, 13 March 1686; Leibniz 1965: II.16). But

on a philosophical level, once again, we see in the work of these texts the capacity of Arnauld to make objections as judicious as they are precise. This high-powered exchange between two of the best minds of the *Grand Siècle* thus constitutes one of the essential steps in the development and maturing of the thought of Leibniz, realizing in a way a link between the texts of his youth and the works of his maturity (*Monadology, Principles of Nature and Grace*).

The correspondence began, however, with a kind of misunderstanding: Arnauld had understood the title of article 13 of the *Discourse* ("the individual notion of each person contains at once all that will ever happen to him") to be a kind of fatalist (or Lutheran?) statement that denies the reality of free will, and he thus reacted very strongly to Leibniz's first letter. But once this initial misunderstanding was overcome, the rest of the discussion was very rich, particularly with reference to the Leibnizian conception of substance, in all of its aspects. Arnauld is very critical on certain themes on which Leibniz explicitly deviated from the thought of Descartes: speculation on possible beings or worlds insofar as, for Arnauld, "the omnipotence of God, which is a pure act, never (p. 353) allows that there is in him any possibility"; the reintroduction of the Aristotelian concept of "substantial forms" in the domain of physics from which Cartesian mechanism had banished them, Arnauld estimating that there is no "clear and distinct idea" of this type of "forms"; the recovery, in the case of substantial forms applied to living things, of the theme of the soul of the beasts, that Arnauld considers as "machines"; the explanation of the union of the two "really distinct" substances that are the soul and the body by concepts other than direct interaction or occasionalism, like the "expression" of which Leibniz speaks.

3.4. Thomistic Reflections of the Final Years

Finally, the whole of Arnauld's last years are marked by a renewal of interest in the philosophical reflections of Thomas Aquinas (those of theology having been abundantly commented on during the disputes over grace), which takes place in two kinds of texts.

The first kind (*Dissertatio bipartita*, 1692; *Règles du bon sens*, 1693) reaffirms Arnauld's rejection of the doctrine of the vision in God of ideas, understood there in the form that it took in the thought of Saint Augustine. Commenting, from a perspective that remains epistemically Cartesian, on question 16 of part I of the *Summa Theologiæ*, Arnauld clearly differentiates "eternal truths", such as they are in God, and "created truths", such as they are in our human minds, which can evoke the so-called Cartesian thesis of the "creation of eternal truths". The acceptance (rare, especially in the minor Cartesians: Cally, Desgabets, Poiret) or the refusal (more frequent: Malebranche, Leibniz) of this thesis,[13] which remains one of the original principles of Cartesian metaphysics, constitutes a good "marker of Cartesianism", or rather the *articulus stantis vel cadentis cartesianismi*, the discriminating criterion to identify those thinkers who, among those who claim Descartes in one way or another, are plainly faithful. Commentators have thus been interested for some twenty years in Arnauld's position on this subject. But they have not agreed among themselves: Moreau (1999) and Nadler (2008) think that Arnauld accepts the Cartesian thesis because it espouses his convictions on the importance of divine power, and sup-

ports the rejection of a univocity of knowledge between man and God founded on the notion of a God who acts as he sees fit. Kremer (1996), Faye (2005), and to a lesser extent Carraud (1996) hold that he rejects it. But in a sense, this debate of the commentators is as much, if not more, about the significance of this thesis of Descartes as it is about Arnauld's position.

The second kind of texts, more numerous and the details of which remain to be studied, concerns human freedom; they are synthesized in a Latin work of 1689, *Humanae libertatis notio*. Arnauld there agrees with the Thomist definition of freedom as *facultas*, or *postestas ad opposita* (capacity, power for contraries) and, without renouncing the classic (p. 354) Port-Royalist critique of freedom of indifference, abandons the equivalence supported by Jansenius between freedom and the simple absence of constraint (*coactio*).[14]

4. What "Philosophy of Antoine Arnauld"?

It is difficult to pronounce on the existence, and the nature, of a "philosophy of Antoine Arnauld":[15] this is due not only to the fact that he never wrote a great treatise that exposes this prospective philosophy in a systematic manner, but also to the fact that his practice of philosophy was essentially developed, as we have seen, in the manner of objection, of refutation, of critique.[16] It is thus difficult to determine whether in philosophy Arnauld is an author who is above all reactive and eclectic, dipping here and there and in an opportunistic manner, depending on the thinkers and theses he is combating, the references and the tools he needs, without necessarily worrying about their logical compatibility; or whether he develops a coherent and conceptually homogenous thought organized around structuring principles and able to claim a certain degree of systematicity.

It remains that this practice of philosophy, above all critical, is very often carried out in the name of Descartes, and that the references to the latter are, with one exception,[17] constant, accepting, and laudatory. We see this in an exemplary manner in the *Examen du Traité de l'essence du corps*, a text written in 1680 (but not published) to respond to a work (now lost) of P. Le Moine that contested the Catholic orthodoxy of Cartesianism on several points, such as the union of soul and body and the real presence.[18] Arnauld defends Descartes in presenting him as a

> Christian philosopher,[19] who receives and reveres all the mysteries of the faith, and who treats only the things that can be treated by the light of reason, recognizing at the same time that all that it has pleased God to reveal to us of himself, or of the extraordinary effects of his omnipotence, must hold the first place in our belief, although we cannot not conceive it; because it is not strange that our mind, being (p. 355) finite, cannot comprehend all that an infinite power can do. That is what M. Descartes has done. He has gone farther than any philosopher before him to discover natural truths by the light of reason alone; but at the same time he has remained […] attached to the truths of faith [following a citation from the Latin text of Principles I.76] […] Never did a philosopher reason more clearly or more justly; nor avoided great speeches and said more things in less words; nor be less

> contented with probability and uncertain conjectures, and have taken more care to build on rock and not on sand; that is to say to establish nothing but on clear and certain principles. It is only necessary to read the first book of his *Principles* or his *Meditations* to be persuaded of all of this. (OA XVIIII. 90–1)

If we take into account the fact that in the *Logic*, the *True and False Ideas*, the *Philosophical and Theological Reflections*, etc., we find attempts to extend the principles of Descartes to fields he has not approached (the development of the philosophy of ideas, semiology, and the theory of language, eventually the philosophical theory of providence), it is tempting to rank Arnauld-philosopher among the Cartesian authors, that is to say as someone having not only admitted the fundamental principles of Cartesian thought, but also having tried to render them fruitful. And he makes them so in establishing—in a manner rather original in the second half of the seventeenth century, which was marked by the oppositions between "ancients" (in philosophy, often the Aristotelian Scholastics) and "moderns" (the Cartesians)—a dialogue between the great classical representatives of Christian thought (Augustine, Thomas) and the *novateur* Descartes. We can thus ask if, in adding a category to those of the great 1974 work of Alquié on the "Cartesianism" of Malebranche (Cartesianism "accepted", "modified", "ruined"), we cannot speak on the subject of Arnauld of a Cartesianism "continued" or "prolonged". And, to remain in the area of the usual categories in the history of philosophy, the question arises as to whether Arnauld should be counted as "great" among the "minor Cartesians" or as "minor" among the "great Cartesians".

In any case, it remains that Arnauld, himself essentially preoccupied by "divine" questions of theology and an apologetic perspective, is only relatively marginally concerned with this "human science" that is philosophy,[20] and that he is above all "noticed for his acute sense of aporia" (Ndiaye 1991: 20). At the same time as it gives rise to the joy of being nourished by a philosophy that is greatly rich in power, but which has not truly been activated, the reading of his texts leaves a feeling of regret: that the Grand Arnauld did not see fit to devote himself more to philosophy.

Translation by Tad Schmaltz

References

Adorno, Francesco Paolo (2005), *Arnauld*. Paris: Les Belles Lettres.

Alquié, Ferdinand (1974), *Le Cartésianisme de Malebranche*. Paris: Vrin.

Ariew, Roger (2006), "Descartes, les premiers cartésiens et la logique", *Revue de métaphysique et de morale* 49: 55–71.

Ariew, Roger (2015), "La *Logique de Port-Royal*, les premiers cartésiens et la scolastique tardive", *Archives de Philosophie* 78: 29–48.

Armogathe, Jean-Robert (1977), *Theologia cartesiana*. The Hague: Nijhoff.

Arnauld, Antoine (1775–83), *Oeuvres de Messire Antoine Arnauld*, 43 vols. Paris and Lausanne: Sigismond d'Arnay.

Arnauld, Antoine (2001), *Textes philosophiques*. Paris: Presses Universitaires de France.

Arnauld, Antoine (2003), *Oeuvres philosophiques d'Arnauld*, 6 vols. Bristol: Thoemmes.

Belgioioso, Giulia (2003), "Arnauld's Posthumous Defense of the 'Philosophie humaine' against Heretics and Sceptics", in Gianni Paganini (ed.), *The Return of Scepticism*. Dordrecht: Kluwer, 167–96.

Bernardini, Lia (1971), "Antonio Arnauld. Natura e Soprannaturale nella questione della 'res extensa cartesiana' ", in *Miscellanea Seicento*, vol. 1. Firenze: F. le Monnier, 235–85.

Bouchilloux, Hélène and McKenna, Antony, eds. (1995), *Antoine Arnauld (1612–1694): Philosophe, écrivain, théologien*. Paris: Bibliothèque Mazarine.

Carraud, Vincent (1995), "Arnauld from Ockhamism to Cartesianism", in Roger Ariew and Marjorie Grene (eds.), *Descartes and his Contemporaries: Meditations, Objections and Replies*. Chicago: University of Chicago Press, 110–28.

Carraud, Vincent (1996), "Arnauld, A Cartesian Theologian? Omnipotence, Freedom of Indifference and Creation of the Eternal Truths", in Elmar Kremer (ed.), *Interpreting Arnauld*. Toronto: University of Toronto Press, 91–110.

Carraud, Vincent (2002), *Causa sive ratio: La raison de la cause, de Suarez à Leibniz*. Paris: Presses Universitaires de France.

Chomsky, Noam (1966), *Cartesian Linguistics*. New York: Harper and Row.

Faye, Emmanuel (2000), "Arnauld défenseur de Descartes dans l'*Examen du traité de l'essence du corps*", *Corpus* 37: 131–59.

Faye, Emmanuel (2005), "Le 'cartésianisme' de Desgabets et d'Arnauld sur les vérités éternelles", *Corpus* 49: 277–98.

Foucault, Michel (1966), *Les Mots et les choses*. Paris: Gallimard.

Gardies, Jean-Louis (2000), "La *Logique de Port-Royal*. Esquisse d'un bilan", *Revue des sciences philosophiques et théologiques* 84: 83–92.

Gasparri, Giuliano (2007), *Le Grand paradoxe de M. Descartes: La teoria cartesiana delle verità eterne nell'Europa del XVII secolo*. Florence: Olschki.

Gouhier, Henri (1978), *Cartésianisme et Augustinisme au XVIIe siècle*. Paris: Vrin.

Kremer, Elmar (1994a), "Arnauld's Philosophical Notion of an Idea", in Elmar Kremer (ed.), *The Great Arnauld and Some of his Philosophical Correspondants*. Toronto: University of Toronto Press, 89–107.

Kremer, Elmar (1994b), “Grace and Free Will in Arnauld”, in Elmar Kremer (ed), *The Great Arnauld and Some of his Philosophical Correspondants*. Toronto: University of Toronto Press, 219–39.

Kremer, Elmar (1996), “Arnauld’s Interpretation of Descartes as a Christian Philosopher”, in Elmar Kremer (ed.), *Interpreting Arnauld*. Toronto: University of Toronto Press, 76–90.

Laird, John (1920), *A Study in Realism*. Cambridge: Cambridge University Press.

(p. 357) Laird, John (1924), “The Legend of Arnauld’s Realism”, *Mind* 33: 176–9.

Leibniz, Wilhelm Gottfried (1923–), *G. W. Leibniz: Sämlichte Schriften und Briefe*. Darmstadt, Leipzig, and Berlin: German Academy of Science.

Leibniz, Wilhelm Gottfried (1965), *Die Philosophischen Schriften von Gottfried Wilhelm* Leibniz, ed. C. I. Gerhardt, 7 vols. Hildesheim: Olms.

Lovejoy, Arthur Oncken (1923), “Representative Ideas in Malebranche and Arnauld”, *Mind* 32: 449–61.

Lovejoy, Arthur Oncken (1924), “Reply to Professor Laird”, *Mind* 33: 180–1.

Marin, Louis (1975), *La Critique du discours: Sur la Logique de Port-Royal et les Pensées de Pascal*. Paris: Minuit.

Marion, Jean-Luc (1996), *Questions cartésiennes II, sur l’ego et sur Dieu*. Paris: Presses Universitaires de France.

Michon, Cyrille (2013), “Le Compatibilisme thomiste d’Antoine Arnauld”, *XVIIe siècle* 259: 265–79.

Mochizuki, Yuka (2017), “Le Jeune Arnauld à la Sorbonne”, *Chroniques de Port-Royal* 67: 309–22.

Moreau, Denis (1999), *Deux cartésiens: La polémique Arnauld Malebranche*. Paris: Vrin.

Moreau, Denis (2000), “The Malebranche–Arnauld Debate”, in Steven Nadler (ed.), *The Cambridge Companion to Malebranche*. Cambridge: Cambridge University Press, 87–111.

Moreau, Denis (2011), “La ‘philosophie d’Antoine Arnauld’: un bilan”, *Chroniques de Port-Royal* 61: 115–28.

Nadler, Steve (1988), “Cartesianism and Port-Royal”, *Monist* 71: 573–84.

Nadler, Steve (1989), *Arnauld and the Cartesian Philosophy of Ideas*. Manchester: Manchester University Press.

Nadler, Steve (2008), “Arnauld’s God”, *Journal of the History of Philosophy* 46: 517–38.

Ndiaye, Aloyse-Raymond (1991), *La Philosophie d’Antoine Arnauld*. Paris: Vrin.

Pariente, Jean-Claude (1985), *L'Analyse du langage à Port-Royal*. Paris: Minuit.

Reid, Thomas (2002), *Essay on the Intellectual Powers of Man*. Edinburg: Edinburg University Press.

Rodis-Lewis, Geneviève (1955), "Augustinisme et cartésianisme", in *Augustinus Magister*. Paris: Études augustiniennes, 1087–104.

Rodis-Lewis, Geneviève (1985), "Polémiques sur la création des possibles et sur l'impossible dans l'école cartésienne", in *Idées et vérités éternelles chez Descartes et ses successeurs*. Paris: Vrin, 139–58.

Schmaltz, Tad. M. (1999), "What has Cartesianism to do with Jansenism?", *Journal of the History of Ideas* 60: 37–56.

Senofonte, Ciro (1989), *Ragione moderna e teologia: L'uomo di Arnauld*. Naples: Guida.

Sleigh, Robert (1990), *Leibniz and Arnauld: A Commentary on their Correspondence*. New York: Yale University Press.

Sleigh, Robert (1996), "Arnauld on Efficacious Grace and Free Choice", in Elmar Kremer (ed.), *Interpreting Arnauld*. Toronto: University of Toronto Press, 164–75.

Solère, Jean-Luc (1995), "Antoine Arnauld, ou la controverse dans les règles", in Alain Le Boulluec (ed.), *La controverse religieuse et ses formes*. Paris: Cerf, 319–72.

Verga, Leonardo (1972), *Il pensiero filosofico e scientifico di Antoine Arnauld*. Milan: Vita e pensiero.

Yolton, John (1984), *Perceptual Acquaintance from Descartes to Reid*. Minneapolis: University of Minnesota Press, and Oxford: Blackwell.

Notes:

([1]) Provided in Arnauld 1775–83 (OA) XXXVIII.1–6 and Arnauld 2001. 10–25. On Arnauld's studies at the Sorbonne, see Mochizuki 2017.

([2]) These philosophical texts of Arnauld are collected together in Arnauld 2003.

([3]) For a more general presentation of the life and thought of Arnauld, see, for example, Senofonte 1989; Bouchilloux and McKenna 1995; and Adorno 2005.

([4]) See also Descartes to Gibieuf, 19 January 1642, AT III.473: "although Monsieur Arnauld has not been a Doctor [of the Sorbonne] for a long time, I do not fail to esteem his judgment more highly than half of the older [doctors]".

([5]) On the originality of the position of Arnauld and his Cartesian solitude at Port-Royal, see for example Rodis-Lewis 1955; Gouhier 1978: ch. 5; Nadler 1988; and Schmaltz 1999.

([6]) See for example Arnauld to Du Vaucel, 19 October 1691, OA III.395–7.

([7]) The *Rules for the Direction of the Mind* certainly in some manner constitutes this Cartesian logic, but it appeared only in 1701. However, Arnauld and Nicole had access to the manuscript of this text, which is cited in the *Logique*.

([8]) For a presentation of and a detailed commentary on this polemic, see Moreau 1999. For a more synthetic view, see Moreau 2000.

([9]) But it is true that the nature of the position of Descartes is itself disputed. For Arnauld —among a very abundant literature—see, in favor of "direct realism", Yolton 1984 and Nadler 1989; in favor of representationalism, Kremer 1994a and Moreau 1999.

([10]) See for example Descartes to Mersenne, 27 May 1630, AT I.152/CSMK 25: for a finite mind like ours, God, infinite, is thinkable, intelligible (we can *intelligere* him), but we cannot comprehend him, "encircle" (*cum-prehendere*) by our thought.

([11]) The manner in which Leibniz describes Arnauld in his various correspondence gives an idea of the intellectual credit he enjoyed, including outside of France: "The renowned M. Arnauld is a man of the deepest and most solid thought that a true philosopher can have; his goal is not only to illumine the hearts of the religious faithful, but also to revive the flame of reason" (Leibniz to Jean-Frédéric, 26 March 1673, in Leibniz 1923–: II-1.231); an author who "excels equally in theology and in philosophy, in reading and in meditation" (Leibniz to Hesse-Rheinfels, 11 February 1686, Leibniz 1965: II.11).

([12]) For a commentary on this correspondence, see Sleigh 1990.

([13]) On the reception of this thesis among the Cartesians, see Rodis-Lewis 1985 and Gasparri 2007.

([14]) On these texts, see Kremer 1994b, Sleigh 1996, and Michon 2013.

([15]) Among the attempts to reconstruct such a "philosophy", see Verga 1972 and Ndiaye 1991. And for an assessment, see Moreau 2011.

([16]) Arnauld has also, in many texts, theorized his practice of controversy: see Moreau 1999: ch. 1, and Solère 1995.

([17]) Arnauld to Du Vaucel (?), 18 October 1669 (?), OA I. 670–1: "His [Descartes's] letters are full of Pelagianism and […] outside of points on which he was persuaded by his philosophy, as the existence of God and the immortality of the soul, all that one can say of him to his greatest advantage is that he always appeared to be submitted to the Church." (It is necessary however to qualify the force of this critique. Arnauld explains on several occasions that Pelagianism is a spontaneous error, almost inevitable for a mind untrained on questions concerning grace).

([18]) For a presentation of this text, see Bernardini 1971, Faye 2000, and Belgioioso 2003.

([19]) On this appellation given to Descartes, see Kremer 1996.

([20]) It is striking to see Arnauld bring back to the rank of “relaxation” or intellectual second best his works on “the human sciences”, which are almost the only ones retained by historians of ideas. See Arnauld to M. des Brosses, 29 January 1684, OA II.389: “[the works that I have written] concern very important matters, and the pressing needs of the Church […] And outside of the little I have written on some human science, or to relax, or not being able to write on more serious matters, there may be none that I must have done; at least so I believed.”

Denis Moreau

Department of Philosophy, University of Nantes

The Ambiguities of Malebranche’s Cartesianism

Jean-Christophe Bardout

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Abstract and Keywords

The reception of Descartes in the second half of the seventeenth century took very different forms, which have been the subject of numerous and documented studies. On this subject, we cannot limit ourselves to categories that are too simplistic. Descartes had faithful disciples and resolute adversaries; he also had critical readers, combining admiration and the conviction that his philosophy, as revolutionary as it is, had to be both followed and reformed. The Oratorian Nicolas Malebranche (1638–1715), who passes for one of the greatest French Cartesians, surely counts among the number of readers who wants to be Cartesian, without however being understood as a disciple of Descartes. Malebranche himself has perfectly expressed the nature of his Cartesianism in declaring, at the end of his first work, the *Search after Truth* (*Recherche de la vérité*; 1674–5): “I admit however that I owe to Descartes or to his manner of doing philosophy the opinions that I oppose to his, and the boldness to criticize him.” In this chapter I attempt to clarify the sense of this remarkably ambivalent affirmation with some examples.

Keywords: Nicolas Malebranche, metaphysics, body, ideas, knowledge of minds, God

(p. 358) THE reception of Descartes in the second half of the seventeenth century took very different forms, which have been the object of numerous and documented studies. On this subject, we cannot limit ourselves to categories that are too simplistic. Descartes had faithful disciples and resolute adversaries; he also had critical readers, combining admiration and the conviction that his philosophy, as revolutionary as it is, had to be both followed and reformed. The Oratorian Nicolas Malebranche (1638–1715), who passes for one of the greatest French Cartesians, surely counts among the number of readers who wants to be Cartesian, without however being understood as a disciple of Descartes. Malebranche himself has perfectly expressed the nature of his Cartesianism in declaring, at the end of his first work, the *Search after Truth* (*Recherche de la vérité*; 1674–5): “I admit however that I owe to Descartes or to his manner of doing philosophy the opinions that I oppose to his, and the boldness to criticize him” (*ST* VI.2.9, OC II.449/LO 526).[1]

What follows is an attempt to clarify the sense of this remarkably ambivalent affirmation, with some examples.

The question of the relations of Malebranche to Cartesianism has been admirably analyzed by Ferdinand Alquié in *Le cartésianisme de Malebranche*. Beyond its detailed analyses, this book defines and implements a real method for analyzing the way in which an author is received and used in another philosophical corpus. The Malebranchean reception of Descartes was neither homogenous nor univocal. Malebranche has an "accepted Cartesianism", first explicit (this concerns principally (p. 359) method and science), then implicit,[2] the object of the first part of the work, succeeded by a "modified Cartesianism",[3] before a final parts that examines what Alquié calls a "ruined Cartesianism",[4] under the pressure of theoretical decisions that make of Malebranche an original philosopher and not a simple abbreviator or a continuator of Descartes.

To evaluate anew the presence of Descartes, we can take the problem backwards, so to speak, and analyze Malebranche's relation to Descartes, from their respective conceptions of metaphysics and the way in which it accounts for its objects.

1. The Discovery of Descartes

The episode of 1664 is well known: Malebranche (who had to that time been taught only scholastic philosophy) discovers Descartes by accident on an outing when he buys the *Treatise on Man*, which had just been published, at a bookshop.[5] Based on a rigorous mechanism and the real distinction between the soul and body, the text of the *Treatise* of Descartes is accompanied by a preface from Claude Clerselier and notes from the physician Louis de la Forge, who, for apologetic reasons, insists on the religious validity and scientific fruitfulness of the new philosophy.[6]

During the following years, until the publication of the first three books of the *Search* of 1674, Malebranche deepens his knowledge of Descartes and reads his principal works. At least, this is what the reconstituted inventory of his personal library tells us.[7] He owned the *Discourse on the Method* and the three essays that follow, the *Principles of Philosophy* (in the French translation of 1647), the *Passions of the Soul*, and naturally the (p. 360) *Meditations*. In addition, there are the three volumes of letters that Clerselier published from 1657 to 1667.[8] Finally, it is possible to conjecture that he very probably had knowledge of all or part of the *Rules for the Direction of the Mind*, then in manuscript, which circulated easily in cultivated Parisian circles, especially among the group formed by the "Messieurs de Port Royal". In the course of these years of training, Malebranche thus gradually appropriates the scientific and metaphysical work of Descartes. His first work appears in 1674 and 1675, also with the Cartesian title: *Of the Search after Truth which Treats of the Nature of the Mind of Man and the Use that Must Be Made of It to Avoid Error in the Sciences* (*De la recherche de la vérité où l'on traite de la nature de l'esprit de l'homme et de l'usage qu'il en doit faire pour éviter l'erreur dans les sciences*). This work includes in book VI the exposition of a method that owes much to the *Discourse* of 1637,

but also to the more complete developments in the *Rules*, cited several times nearly word for word.

2. Method and Metaphysics

For Malebranche as for many others, Descartes, who “has discovered in thirty years more truths then all other philosophers” (ST I.3, OC I.64/LO 15), remains exceptional for his effort to break with the scholastic conception of the world (largely founded on Aristotelian hylomorphism), but also for that method that guided him.[9] Malebranche understands his relation to Descartes by considering this relation as a double recovery. Playing on the notion of the verb ‘to recover’, Malebranche “recovers” Descartes in the sense of adhering to some of his methodological principles and several of his metaphysical theses. But he “recovers” also in the sense of a rectification or an amendment of Cartesian positions, especially in metaphysics and physics. Even in the name of a clearly Cartesian method of inspiration, the Oratorian rethinks anew, in a resolutely anti-Cartesian manner, the properly metaphysical question of the foundation of knowledge.

From Descartes, Malebranche borrowed the distinction between probable and certain knowledge, the thesis of the exclusive epistemic validity of clear and distinct ideas (*ST* I. 2.4), the requirement of an order proper to knowledge, or the affirmation of the autonomy of reason with regard to Revelation and to the tradition of the Church.[10] How does this method, based on the cognitive power of clear and distinct ideas, give rise to a metaphysics, and what is the relation between metaphysics as Malebranche and Descartes conceive it? To answer these questions it is necessary to recall very briefly the (p. 361) main features of the Cartesian conception of metaphysics,[11] in order to measure the gaps that the Malebranchean redefinition introduces.

Following a long tradition of relating Descartes on this point to his scholastic predecessors and contemporaries (from Suárez to Euchache de Saint-Paul), Malebranche sees in the abstraction from the senses the condition of the possibility of metaphysics (*ST* IV.11.2, OC II.90/LO 315). The first principle of morals is “abstract, metaphysical, purely intelligible; one does not sense it, one does not imagine it” (*ST* IV.2.3, OC II.20/LO 271).[12]

This initial agreement, more apparent than real, does not mask a fundamental divergence, insofar as for the two authors abstraction is not exercised in the same way and does not determine the same object. Recall that the scholastics, particularly Suárez, assign as the object adequate for metaphysics being insofar as it is real being (to the exclusion of the being of reason). God and other immaterial substances are considered only in a secondary way. With regard to this majority position, Descartes makes several decisions. (a) First of all, he breaks with the project (which will become that of ontology) of treating being as being, in favor of the study of God and the soul insofar as they are implicated in the theory of knowledge. (b) Concerning metaphysics properly speaking, he restricts it to the consideration of God and the soul.[13] (c) With respect to a metaphysics so restricted to immaterial substances, he admits a first philosophy that concerns all things that can be known in a philosophy that follows order.[14] In short, the true primacy passes

to principles of human knowledge, as Descartes clearly affirms in the preface to the French translation of the *Principles of Philosophy* in 1647. He evokes there "the true philosophy, or which the first part is metaphysics, which includes the principles of knowledge, among which is the explanation of the principal attributes of God, the immateriality of our souls, and all clear and simple notions that we have in us" (AT IXB.14/CSM I.186). In saying this, Descartes begins a turning point that will exert a determining influence on the entire history of metaphysics in modern times, up to Kant at least, through Malebranche. It is indeed from a Cartesian horizon that the Malebranchean determination of metaphysics must be examined, insofar as the Cartesian initiative makes this determination possible. Let us try to retrace the main directions.

1) Malebranche confirms his Cartesian abandonment of an ontological comprehension of metaphysics. Though we have an idea of being, which is so to say the mistress of our other ideas, being nevertheless is not the object of a specific science. A number of texts pronounce the equivalence of the idea of indeterminate being (p. 362) and the idea of God (e.g. *ST* IV.11.2, OC II.95/LO 318). The vague and general idea of being, which is constantly present to our mind,[15] cannot be identified with a *concept of being*, obtained by abstraction from all other particular concepts, that provided the point of departure for a metaphysics of Suárezian origin.

2) Though God and mind continue to constitute the objects of metaphysics, they are not longer the first objects. In other words, it is not as a science of God and mind that metaphysics imposes itself as a science that is at once general and first. Its priority comes from the fact that it treats for itself principles of knowledge. This is why the so called doctrine of the vision in God of ideas, central for the theory of knowledge, is for the same reason a cardinal thesis of metaphysics.[16]

3) Although it is not absent from the *Search after Truth*, it is in the *Dialogues on Metaphysics* (1688 for the first edition) that metaphysics receives a complete definition. Thus we read at the beginning of Dialogue VI (§2, OC XII.133): "This general science rules over all others. It can draw examples from them and a little detail necessary to render its general principles sensible. For by metaphysics I do not understand these abstract considerations of certain imaginary properties […] I understand by this science general truths that can serve as principles for the particular sciences.[17] I am persuaded that it is necessary to be a good philosopher to gain an understanding of the truths of faith, and that the stronger we are in the true principles of metaphysics, the stronger we are in the truths of religion."[18] Metaphysics is first of all the science of the idea, which can be understood in two senses. In the first place, it covers all that can be known by a clear and distinct idea.[19] It also presents itself as fundamentally a theory of the conditions of the possibility of science. Thus we see a Cartesian proposition—that all we know by a clear and distinct idea is true or is such as we conceive it[20]—characterized as a metaphysical axiom, then as "the general principle of all sciences" (OC II.94/LO 317), insofar as it appears as the most evident proposition of all, the first in the order of our knowledge.[21] Chapter 11 of book IV of the *Search* asserts unambiguously the (p. 363) foundational value of the principle of evidence. The other sciences derive their certainty from the fact that

they concern ideas that are clear and distinct. Metaphysics thus assumes a regulating function.

4) Metaphysics thus must exceed all other particular sciences, which are engaged in the clarification of such or such realm of being (God, minds, bodies), in order to rise to the comprehension of what constitutes the essence of science. It is in this capacity that it becomes a general science and validates the conclusions reached by the so-called particular sciences. In this capacity, metaphysics conserves these two traditional characteristics of priority and universality: priority, insofar as it determines the a priori conditions of true knowledge and thus of future knowledge; and universality, in virtue of the breadth of its object, namely, all knowable beings and their relations. It is only at a second state that it takes charge of the study not only of substances separated from matter (God and mind), but also the essence of bodies, by means of so-called intelligible extension, thus emerging as the science of the foundations of physics.

5) We therefore understand how Malebranche unifies the notion of metaphysics and resolves the potential conflict between metaphysics and first philosophy. The latter disappears since metaphysics assumes its function. However, it cannot be maintained that metaphysics (in its Malebranchean meaning) takes up the Cartesian determination of first philosophy. In fact, though metaphysics understands itself as a theory of knowledge, it no longer relies on an order according to method. In Cartesian terms, it is not knowledge of the first things that we can know in philosophizing according to order, but rather knowledge of all that can be known by clear and distinct ideas.

We can therefore return to our original question concerning the relations between metaphysics and method. Henceforth, we must hold neither that, for Malebranche, method produces metaphysics, nor that the latter is preceded and rendered possible by a method that is distinct from and prior to it. Otherwise it would be necessary to establish that the method exposed in book IV of the *Search after Truth* makes possible the metaphysics exposed in later texts (from Elucidation X to the *Dialogues on Metaphysics*). It would be necessary to show further that the methodological order as theorized in book IV governs subsequent metaphysical exposition.[22] But such is not the case.[23] Thus, after the *Search* method disappears from the exposition of philosophy, or at least it does (p. 364) not receive serious attention (*Dialogues* XIV.4, OC XII.337). The reduction of all method to attention is explained by the fact that the latter is defined as the occasional cause of intellectual knowledge,[24] at which we arrive by means of the vision of divine ideas. Thus method seems to be absorbed or reabsorbed into metaphysics.

There is more: Malebranchean philosophy no longer complies with the requirements of an invariable order. Each of its principal expositions, from the *Treatise on Morality* to the *Christian Meditations* (which becomes "metaphysics" from its third edition) and to the *Dialogues on Metaphysics*, obeys a particular order, dictated no longer by the rules of a method or the functioning of mind, but by the objectives specific to each text. Thus the

Cartesian order of reasons finds itself to be pluralized and therefore, by the same, deprived of its properly heuristic function.

To conclude, Malebranche takes up the demand for a foundation, or a metaphysical rooting of science, as Descartes portrays the project in the preface to the *Principles*. However, in reconceiving metaphysics as the general science in charge of determining the conditions of access to the truth, he renders partially inoperative the representation of the relations between metaphysics and the other sciences on the model of a tree, of which the metaphysical roots nourish the physical trunk and the branches that are morals, medicine, and mechanics. The epistemic determination of metaphysics leads to a preference for the model of a sort of efflorescence: metaphysics, science of objectivity in general, is thus as immediate to work in mathematics as in physics, in morals, and in all that concerns what, under the name of "religion", pertains to natural theology.

3. God

As general science, metaphysics guarantees the epistemic value of particular sciences. To do this, it invests in the study of objects accessible by ideas. Following the order of the *Search* (*ST* III-2.7, OC I.448/LO 526), we will examine successively what philosophy can teach us about God, bodies, and minds.[25]

The initial attitude of Malebranche still appears very Cartesian. For Descartes, philosophy and science, on the one hand, and faith and theology, on the other, proceed according to two distinct plans and constitute two discourses directed to different ends. While the exegesis of Revelation, the truths of which are "above our intelligence" (*Discourse on the Method*, AT VI.8/CSM I.114), aims first at our salvation, the sciences intend to deduce natural truths from principles known with evidence. Consequently, the philosopher does not meddle in theology, and the theologian must not intervene to limit the pretensions of philosophy, as it is limited to the domain of clear and distinct (p. 365) ideas. Metaphysics demonstrates with certainty the existence of God and some of his attributes,[26] but an infinite and incomprehensible God, one who proposes ends in creation that we cannot completely grasp.[27] The first writings of Malebranche maintain a clean separation of reason, which is regulated by ideas viewed with evidence, from faith, which concerns facts that are not rational but nonetheless certain due to Revelation: "in matters of faith it is not necessary to look for evidence before believing then, as in matters of faith it is necessary not to stop with faith, that is to say the authority of the philosophers. In a word, to be faithful it is necessary to believe blindly, but to be a philosopher it is necessary to see evidently (*ST* I.3, OC I.62/LO 14).[28] Hence the affirmation of a radical difference of method: philosophy, resting on the evidence of ideas, does not recognize the value of authorities, which is why the philosophers of the Schools are in error in following Aristotle as a master. Conversely, theology, which derives from a revelation that transcends reason and is completed once and for all, sees in the accumulation of qualified authorities (in the first place the Fathers of the Church and councils) a very probably indication of the truth of its doctrines (*ST* II-2.5, OC I.293–4/LO 145).

In later texts, Malebranche moves the line of demarcation between reason and Revelation. With the thesis of the "vision in God" and the elaboration of the notion of universal reason in Elucidation XI, our reason is no longer, as for Descartes, cut off from divine reason by the insurmountable chasm that derives from the creation of eternal truths. According to Malebranche, our reason participates in universal reason, illumined as it as by the divine Word.[29] It is henceforth "the same Wisdom that speaks immediately by itself to those who discover the truth in the evidence of reasons, and that speaks by the holy Scriptures to those who make sense of it" (*ST* VI.2.6, OC II.381/LO 486). This unity of wisdom, allied with the theory of knowledge, authorizes the philosopher to speculate on the mysteries, and the metaphysician to probe the truths of religion. Faith is no longer heterogeneous with philosophy. Reciprocally, certain revealed doctrines can put reason (helpless if left to itself) on the path to the truth. According to the penetrating formulation of Ferdinand Alquié, "Christian dogmas are not only explicable, they are explicatory" (Alquié 1977: 17).[30]

(p. 366) Concerning our knowledge of God, Malebranche appears at first far from Descartes in holding that we have no idea of God, because we see him in himself, by an "immediate and direct view" (*ST* III-2.7.2, OC I.449–50/LO 236–7).[31] However, in order to avoid accusations of what later will be called ontologism, other texts give us a "notion" of God (*Dialogues* VIII.5, OC XII.180), and finally recognize an idea of God,[32] which, as for Descartes, makes possible the deduction of certain properties (Elucidation VIII, OC III.86/LO 587). Thus the notion or idea of God leads to the privileging of two of the principal Cartesian divine names: perfection and infinity.[33] From the outset, however, two differences are noticeable in comparison with their Cartesian elaboration. Although Descartes reserves infinity for God and closely associates it with his incomprehensibility (Fifth Replies, AT VII.368/CSM II.254), Malebranche divides infinite into different kinds,[34] of which the most obvious for us is extension, so far as it is considered a divine idea, under the name of "intelligible extension".[35] In so doing, Malebranche introduces distinctions in the infinite and provides the means of prioritizing what he takes to be unequal infinities among them (*Christian Meditations* IV.11, OC X.40).[36] In addition, the imperatives of the theory of knowledge, which localizes in God different kinds of being as they are (at least in principle) representable, evokes the use of other obviously non-Cartesian divine names. Thus there is indeterminate being,[37] or again "being without restriction" or "universal being".

Concerning the theory of knowledge by idea, we hold that God does not play the same role for the two philosophers. For Descartes, God guarantees, as exterior, the evidence of ideas, which remain conceived as modes of the finite mind. For his part, Malebranche conceives of ideas as included in the divine essence, from which it follows that the ideas are necessary, eternal, and thus immutable. Insofar as they are viewed directly in the Word of God, the question of divine "veracity" is no longer posed.[38] In addition, the properly Cartesian notion of "natural light" loses its relevance, since man is no longer a light to himself.[39] The vision in God of ideas finally presents an immediately anti-Cartesian

(p. 367) consequence, with the rejection of the thesis announced in the three letters to Mersenne during the spring of 1630, concerning the free disposition of eternal truths.[40]

With this conquest of a rationality at least partially univocal, Malebranche can then try to elucidate the characters of the creative operation that he intends to deduce from the very idea of the infinitely perfect being (*Treatise* II, art. 17, OC V.75). Two decisions govern the Malebranchean speculations.

> **1)** We can deduce from the idea of God that he acts according to the most simple ways, that is to say, by those which are the most general and require the least amount possible of particular volitions.[41] Far from exploding in the overflow of an incomprehensible power (which would only want the most perfect world possible), the perfection of God manifests itself in the choice of a world as good as possible in relation to the means implemented, that is to say the ways that are certainly the most fruitful, but that also manifest the greatest simplicity and uniformity (*Dialogues* IX. 10, OC XII.214). The hierarchy of divine attributes is redesigned. To the lack of distinction between the understanding and will of God in Descartes,[42] Malebranche opposes the affirmation of the priority without condition of wisdom over power.[43]
> **2)** Consequently, we can speculate concerning the ends that God proposed to himself for creation.[44] Let us begin by noting that God has not made the world for us. According to Order (to which he is inviolably subject), God can love only himself, to the extent that one can evoke a form of divine egoism. Thus he can act only for himself. Creation is not gratuitous and does not hold in virtue of the overabundance of his love. God does not act for us but for himself, for his own glory (*Treatise* I, art. 56, addition, OC V.59).[45] The world, by essence inferior to its creator, can be glorified only if it is in some way infinite in value and can thus explain the creative initiative. It is in the Incarnation of the Word that Malebranche believes he is able to find this motive. Thus the Incarnation constitutes the sufficient reason for creation. We can measure the distance from Descartes, who judged the ends of God to be impenetrable and held the Incarnation to be an admirable mystery that his transcendence however made foreign to philosophy and invisible to the natural light.

Malebranchean natural theology produces a singular disjunction in God. In holding on the one hand that we access (at least in part) divine wisdom, but in maintaining on the other that his power is invisible to us,[46] Malebranche carries to an extreme the (p. 368) distinction of the divine attributes, at the risk of threatening the unity of the divine essence itself.

4. Bodies

Knowledge of bodies and mind is organized according to a certain chiasm: while we access the essence of body by the clear and distinct idea of extension, or intelligible extension, their physical (or material) existence remains invisible to us.[47] Conversely, we do not know the essence of our soul, but we are certain of its existence by inner sensation that is

given to us. We sense that we are, but we cannot see in God what we are (Elucidation X, OC III.151/LO 626).

We therefore know the general essence of material nature by a clear and distinct idea, the idea of extension, or intelligible extension, archetype of matter, seen directly in God. On the other hand, the existence of the created world is not accessible to us in itself, since bodies, being causally impotent, cannot affect minds. Occasionalism, applied to the cause of our sensations, will compromise the fragile Cartesian argument exposed in Meditation VI. Do not forget that the world is contingent, that it is not, as Malebranche often says, a necessary emanation from God,[48] and that, to know that God has actually created the world, not only is it necessary to demonstrate the existence of God and his veracity, but also that God has revealed to us that he has actually created (Elucidation VI, OC III. 61/LO 573). In Elucidation VI, Malebranche refuses to make divine veracity play the role that Descartes conferred on it to guarantee our inclination to believe that bodies exist outside of us. However, the indemonstrability of the existence of bodies does not prevent the development of physics, since the sensations with which God affects us on the occasion of bodies can provide a sufficient basis for this development (*ST* VI-2.6, OC II.373 and 377/LO 482 and 484).

The idea of extension (that represents the essence of bodies) as well as those of shape, motion, and rest, offer a valid point of departure for physics (*ST* VI-2.6, OC I.377/LO 484).[49] Insofar as physics proceeds from an idea seen in God, we can understand how it depends, in turn, on the conditions of true knowledge, as elucidated by general science.

The Malebranchean conception of physics employs certain important elements of Cartesianism.[50] Thus for the Oratorian, physics must first of all break with the prejudices of the scholastics. Among them, he will mention in the first place the abandonment of (p. 369) substantial forms (see in particular, *ST* I.16). It is also important to reject a realist conception of sensible qualities (*ST* VI-2.2, OC II.302–3/LO 441–2). Perceived qualities (color, odor, and the other secondary qualities) are not in bodies. They are modes of mind, of which different material configurations are only occasional causes. Sensible qualities are sensations that correspond to (without in any way resembling) modifications of matter.[51] The occasionalist conception of causality best serves the thesis of a radical dissociation of psychic facts from physical events. We shall not confuse the felt pain with the pinprick and the lesion of the flesh of the finger, on the occasion of which God produces in us this sensation of pain.

The essence of body, reduced to geometrical extension, is thus represented by the idea of extension, or intelligible extension, prototype of a clear and distinct idea. We can start with this in constructing a science of material nature (see particularly *ST* VI-2.4, OC II. 325/LO 455). Let us recall the central theses before mentioning the tensions related to the reconciliation of the thesis of the vision in God of intelligible extension with the imperatives of physics.

1) In conformity with a mechanist physics of a particularly Cartesian kind, Malebranche explains the phenomena of material nature by extension and its modes,

which are the shape of bodies and the local motion of the parts of matter. Nature is henceforth deprived of all internal force and thus of all occult faculties.[52] In this view, Malebranche goes farther than Descartes. Though the latter reserves for corporeal secondary causes a form of reality and thus of efficacy, Malebranche attributes to God alone the power to move a part of matter. For Malebranche, then, God is henceforth the only efficient cause of all motions, as, for the rest, of all the modifications of created beings.[53]

2) Malebranche retains the Cartesian theory of vortices (*ST* VI-2.4, OC II.327–8 and 333/LO 456 and 459–60).[54]

3) He borrows again from Descartes the concept of laws of nature. Material nature obeys laws known by experience and confirmed by rational analysis. He will nevertheless be led to revise the laws of bodily collision, in particular as a result of his exchanges with Leibniz.[55]

4) By being founded on a clear and distinct idea, physics gains a certainty comparable to that of mathematics. From this, we better understand how metaphysics validates physics, although the latter, insofar as it concerns existing bodies, cannot be reduced to the intellection of an essence and to the a priori deduction of all properties of bodies.

(p. 370) But this situation does not come without several difficulties, which put in play the way in which general science can furnish the principles of the particular science that is physics. Intelligible extension is a general idea, archetype of a material extension equally general. But bodies are singular entities. We know that, according to Descartes, their distinction derives from differences in the configurations of matter; their individuation is, for its part, assured by the actual motion of parts of matter. Malebranche retains this theory of material individuation, but encounters a difficulty related to his own analysis of knowledge. The idea of extension in fact represents not so much created bodies, with their properties, as their universal essence. Intelligible extension thus does not produce knowledge of existing and individual bodies.[56] In effect, though intelligible extension allows for the representation of possible motions, as local motion is defined as a variation in the relations of distance between different parts of extension, the general idea of extension does not allow for the representation of such or such actual motion. It is only by sensation (thus by a confused knowledge) that we can know what motion actually produces.

5. Minds

In contrast to our knowledge of bodies, founded in the idea of extension, we have no access to the archetypal idea of our soul, which we know by "consciousness" (*conscience*) or by "inner sensation" (*sentiment intérieur*)[57] (*Christian Meditations* IX.17–18).[58] In saying this, Malebranche seems to break explicitly with Cartesianism. An examination of the texts and questions reveal, however, a situation more complex.

A first series of affirmations seem clearly to lead to a break with the letter of the Cartesian philosophy:

1) In the economy of Malebrancheanism, the *I think* seems to lose its priority, if not in the still Cartesian exposition in book IV of the *Search*. One therefore could speak of a "decay of the *cogito*" (*déchéance du cogito*)[59] insofar as the *I think* is henceforth neither the foundation of an order of reasons, nor a model of evidence.

(p. 371) **2)** Inner sensation assures us of the existence of our soul, but no longer gives us access to its essence. The question *What am I?* or *What is a thing that thinks?*, decisive for the metaphysics of Descartes, seems (provisionally, at least) have to remain without response.

3) Consequently, and contrary to the constant affirmation of Descartes,[60] the soul ceases to be better known than body. Though Malebranche recognizes that his existence is more evident than that of body,[61] the situation is the converse concerning his essence. In comparison with knowledge by idea, knowledge of the soul can be only imperfect.[62]

4) There is more: extension and its modes (shapes and motions) allow for the representation by analogy of the nature, or at least the faculties, of mind. While shapes are to matter as ideas are to mind (namely, its modifications) (*ST* I.1.1, OC I.43–4/LO 2), motion is to matter as the will (always straight in itself) is to mind (*ST* I.1.2, OC I. 45–6/LO 2–3). By this kind of analogy, we arrive at an indirect knowledge of mind by a route that Descartes clearly would have disavowed since it presupposes the mediation of the senses and imagination, energetically challenged most notably in Meditation II.

Nonetheless, one can suggest, following Ferdinand Alquié, that these apparent departures concern not so much the depth of the doctrines themselves as the ways in which they are expressed. In Meditation II, Descartes has defined the thing that thinks, in recognizing in it a series of properties, from doubt, to volition, from intellectual thought to imagination and sensation (AT VII.28/CSM II.19). The attribution of these different modes to the *res cogitans* is accomplished not by deduction, but by a census that authorizes the exploration of what we find or experience in ourselves. But it seems that though it rests on an inner sensation foreign to ideas, the Malebranchean method leads to similar findings. Though one can read the *Search after Truth* as a treatise on the mind with a view to determining the different causes of error, the succession even of the first five books (which examine, respectively, the senses, the imagination, the understanding and ideas, the inclinations, and finally the passions) confirm this fact. Even without procuring a clear and distinct idea of our mind, inner sensation, as imperfect as it is, does not prevent the clarification of the nature of the mind.[63] It is thus that Malebranche can enunciate a particular number of properties of mind that, for the most part, coincide with those already enunciated in Cartesian texts. The soul will be distinct from (p. 372) body, endowed with freedom, spirituality or immateriality, even immortality.[64] Thus Malebranche, as Descartes, admits a knowledge of mind, the imperfection of which does not affect its val-

ue.[65] It does not seem that the Malebranchean refusal to grant us an idea of the soul leads to a "regression" with regard to Cartesian metaphysics.[66]

6. Conclusion

At the end of this brief journey, we can perhaps better discern the sense in which it can be said that Malebranche remains Cartesian. He assuredly was not a disciple or a faithful defender, and did not care to be. Even in the name of a kind of fidelity to the demands of the method and clear and distinct ideas, Malebranche, as others from his time, claim the right to take an inventory of metaphysics, the theory of knowledge, and more generally the whole of philosophy, understood in its broadest sense. We have seen that the reception and use of Descartes is not univocal: though Malebranche modifies or abandons Descartes, he also generalizes him. One could go so far as to say that the philosophical theology of Malebranche, which consists in submitting creative action to the intelligibility of clear ideas, constitutes a paradoxical extension of a Cartesian paradigm, contrary to the intention of its inventor. In so doing, Malebranche gives by his way of understanding one of the forms of the transition of the thought of Descartes to what is commonly called Cartesianism. He thus constitutes an essential link in the constitution of an Enlightenment Cartesianism.

Translated by Tad Schmaltz

References

Alquié, Ferdinand (1974), *Le cartésianisme de Malebranche*. Paris: Vrin.

Alquié, Ferdinand (1977), *Malebranche et le rationalisme chrétien*. Paris: Seghers.

André, Yves-Marie (1886), *Vie du Père Malebranche*, ed. P. Ingold. Paris: Poussièges.

Bardout, Jean-Christophe (1999), *Malebranche et la métaphysique*. Paris: Presses Universitaires de France.

Bardout, Jean-Christophe (2000), "Metaphysics and Philosophy", in S. Nadler (ed.), *The Cambridge Companion to Malebranche*. Cambridge: Cambridge University Press, 139–64.

Bardout, Jean-Christophe, and Jean-Luc Marion (2010), "Philosophie cartésienne et théologie. Distinguer pour mieux unir?", in Jean-Christophe Bardout (ed.), *Philosophie et théologie*, vol. III: *Époque moderne*. Paris: Editions du Cerf, 199–217.

(p. 373) Gouhier, Henri (1926), *La vocation de Malebranche*. Paris: Vrin.

Gueroult, Martial (1955), *Malebranche*, vol. I: La vision en Dieu. Paris: Aubier.

Malebranche, Nicolas (1958–87), *Œuvres Complètes de Malebranche*, ed. A. Robinet, 20 vols. Paris: Vrin.

Malebranche, Nicolas (1997), *The Search after Truth*, ed. and trans. T. M. Lennon and P. J. Olscamp. Cambridge: Cambridge University Press.

Marion, Jean-Luc (1999), *On Descartes' Metaphysical Prism*. Chicago: Chicago University Press.

Pieyre, Clément, and Vincent Carraud (2016), "Les *Lettres* de Descartes annotées par Malebranche". *Bulletin cartésien* 45: 174–85.

Rodis-Lewis, Geneviève (1963), *Nicolas Malebranche*. Paris: Presses Universitaires de France.

Schmaltz, Tad M. (1996), *Malebranche's Theory of the Soul*. Oxford: Oxford University Press.

Notes:

([1]) The *Search* (*ST*) is cited by book (-part), chapter and section. OC = Malebranche 1958–87. LO = Malebranche 1997.

([2]) Malebranche is implicitly Cartesian concerning the modalities of our knowledge of matter and mind, Malebranche *s'avère implicitement cartésien concernant les modalités de notre connaissance de la matière et de l'esprit*, then touching on our knowledge of God and the proof of his existence (Alquié 1974: ch. 3).

([3]) It notably concerns the theory of knowledge and the question of ideas, causality, and the notion of God's simplicity of ways.

([4]) One can ruin in different ways: thus Alquié thinks he sees a "transformed Cartesianism" (concerning sensations and the concept of order), an "abandoned Cartesianism" (concerning the will, pleasure, freedom, or the notion of inquietude), or again a "generalized Cartesianism" (relative to the mode in which God operates in creation and, more broadly, to a new conception of the relation between philosophy and theology).

([5]) See Gouhier 1926; Alquie 1974: ch. 1. Cf. André 1886: 11–2.

([6]) Clerselier's preface reveals several themes of Cartesian metaphysics; the *Remarks* of La Forge, concerning the modalities of the union of mind and body, introduce the lineaments of the system of occasional causes. The same La Forge published, in 1666, a *Treatise on the Mind of Man* (*Traité de l'esprit de l'homme*), on its faculties and functions, that Malebranche almost certainly read during the long period of the maturation of his own philosophy. The volume of 1664 also includes a preface from the Dutch Florent Schuyl, who insists on several important themes, including the refusal to attribute a soul to the beasts.

([7]) See OC XX.261, for the works of Descartes; see André 1886: 14. It is surprising that the famous *Treatise on Man* is not included in this list. We can conjecture that Malebranche donated it to the library of the Oratory.

([8]) The copy that Malebranche owned has recently been recovered in Pieyre and Carraud 2016.

([9]) See the critique of the physics of Aristotle in *ST* VI-2.5. The lack of method in this case highlights, by contrast, the superiority of Cartesian physics, fruit of the method that Malebranche intends to take up for himself. The main methodological grievance addressed to the Stagirite is the confusion between vague and general terms (including that of force) and distinct and particular ideas.

([10]) At least in the *Search*, faith and reason are clearly distinguished; see *ST* I.3.2, OC I. 62–3/LO 14–15.

([11]) See Marion 1999: 9–66.

([12]) See *Dialogues on Metaphysics* (hereafter *Dialogues*), III.12, OC XII.76. As for the scholastic tradition as commented on by Descartes, abstraction exercises the two sensible faculties, namely, sense and imagination. Note the "metaphysical" character of the first principle of morals.

([13]) These two objects belong more to philosophy (that is, to metaphysics) than to theology, as he reminds the doctors of the faculty of theology to whom he recommends his *Meditations* (AT VII.1/CSM II.3).

([14]) Descartes explains to Mersenne in this way his choice of the designation of his Meditations as "first philosophy"; see November 11, 1640, AT III.235/CSMK 157, and from the same, AT III.239/CSMK 158.

([15]) *ST* III-2.8.1, OC I.456/LO 241. Malebranche implicitly attacks the abstraction of the scholastic concept of being when he makes the idea of being the cause of the disordered abstractions of mind: see the title of §1 of the same ch. 8.

([16]) Elucidation VI, OC III.53–4/LO 568–9. The vision in God is characterized as an unshakeable foundation; see Elucidation X, OC III.128/LO 612. Any error in metaphysics would weaken the edifice; *Christian Meditations* IX.13, OC X.101.

([17]) Already in the *Search*, the list of common notions that belong to metaphysics also incorporates the principles of Cartesian physics; see *ST* IV.11.2, OC II.90/LO 315.

([18]) See to Pierre Berrand, December 1686, OC XVIII.427. See also Bardout 1999: chs 1.5 and 7, and Bardout 2000: 139–64.

([19]) The final texts, notably the last letter to Dortous de Mairan (September 6, 1714), explain that the Cartesian principle covers only ideas seen immediately, and not things external to ideas; see OC XIX.911.

([20]) See Meditation III, AT VII.35/CSM II.24.

([21]) The succession of determinations in ST IV.11.2 is eloquent: the Cartesian general rule is first qualitied as "foundation of all our clear and distinct knowledge" (OC II.92), then as "first axiom of all sciences"(II.93), then "first principle of all sciences" (II.92), and finally "general principle of all sciences" (II.94).

([22]) It would be better to distinguish more precisely the situation of the *Search*, in which a Cartesian type of method remains operative, and subsequent presentations. In the *Search*, the method that prescribes starting with the simplest things and then proceeding to those that are more composite (thus the method founded on the nature of knowledge) remains at work and governs physics; see *ST* VI-2.4, OC II.322/LO 453.

([23]) Already in book I of the *Search*, another conception of method, genetic and free of the constraints of a purely cognitive order, is emerging: "since the method that examines things by considering them in their birth and in their origin is more orderly and illuminating, and makes them more thoroughly known than others, let us try to put it into practice here" (*ST* I.1, OC I.40/LO 2).

([24]) See especially *Dialogues* XIII.9, OC XII.319.

([25]) General science is divided into these three particular sciences that are religion (discourse on God and his Revelation), physics (science of bodies), and morals (which presupposes the science of mind).

([26]) On the other hand, metaphysics cannot prove either the Trinity or the Incarnation; see *Principles of Philosophy* I.25, AT VIIIA.14/CSM I.201.

([27]) Concerning the relations between faith and reason, the principal Cartesian places are recalled in Bardout and Marion 2010: 199–217.

([28]) See *ST* IV.3.2, OC II.33–4/LO 279.

([29]) By the vision in God, the mind "knows things in some way as God knows them" (*ST* V.5, OC II.168/LO 364). These lines indicate the considerable distance from Cartesianism; cf. Elucidation X, OC III.140/LO 620; and the claim that ideas are common to God, to angels, and to man (*Dialogues* I.7, OC XII.42).

([30]) Thus only the sin of the first man explains the current dependence of the soul on the body, rendered manifest by our passions, despite the fact that metaphysics shows, on the contrary, the ontic superiority of the mind over the body (*ST* I.5.1, OC I.75–6/LO 22). The contradiction between the historical situation of man today and clear and distinct truths is lifted by recourse to a revealed datum. Likewise, the Incarnation delivers the reason for Creation; see *Dialogues* IX.5, OC XII.204.

([31]) The principal argument consists in the conception of the idea as archetype of creatures: God cannot have an archetype of himself; the Oratorian thus refuses to allow an idea of God, if by idea is understood a finite mode representing the infinite.

([32]) Elucidation XVII, OC III.341/LO 743; *Treatise on Nature and Grace* I, art. XII, OC V. 27.

([33]) But while Descartes uses them in distinct contexts (Meditation III privileged the infinite and Meditation V perfection), the *Dialogues* conjoins them; see IX.1, OC XII.197.

([34]) It evokes as well "the idea of the infinite in all kinds of being, that which answers to this word Being, infinitely perfect Being" (*Dialogue of a Christian Philosopher*, OC XV.8).

([35]) *Dialogues* II.3, OC XII.52; XI.4, OC XII.255.

([36]) This move subjects certain infinities (Descartes would have said indefinites) to a form of mathematical intelligibility, but also challenges the strict Cartesian identity between the infinite and God.

([37]) Sometimes this adjective has a more impoverished sense and applies to being as such, without precise determination (*ST* III-2.4, OC I.432/LO 227); but it also has an opposed sense and refers to God, who is positively indeterminate because he contains within himself all kinds of being (*Dialogues* I.3, OC XII.52).

([38]) The critique of innate ideas, probably aimed at Descartes, is found in *ST* III-2.4, OC I. 429/LO 226. Cf. Elucidation X, OC III.144–5/LO 622–3, which expressly attacks the *messieurs les cartésiens*.

([39]) *ST* III-2.5, OC I.434/LO 228–9. It is a *lumière illuminée*, but never *illuminante*; see *Christian Meditations* I.27–8, OC X.18. Cf. IX.18, OC X.103; *Treatise on Morals* II.3.1, OC XI.168.

([40]) Initiated in the *Search*, the critique is brought to an end in Elucidation X, in particular OC III.136/LO 617–18, with explicit reference to the Sixth Replies.

([41]) Among a number of texts, see *Treatise* I, art. 12–13, OC V.27–8.

([42]) To Mersenne, May 27, 1630, AT I.153/CSMK 25–6; To Mesland, May 2, 1644, AT IV. 119/CSMK 235.

([43]) *Treatise* I, art. 1 (addition), OC V.12; art. 38 (addition), OC V.47.

([44]) *Dialogues* IX.3, OC XII.200–2. Though knowledge of final causes is of little use in physics, it is decisive in the (metaphysical) project of proving religion; see Conversation III, OC IV.60.

([45]) See also *Treatise* I, art. I, OC V.12; *Dialogues* IX.4, OC XII.202–3.

([46]) See *Christian Meditations*, IX, 2.

([47]) Alquié believes he can explain this doctrinal tension in light of the Cartesian distinction between substance (in itself unknown) and its principal attribute, which constitutes its essence.

([48]) Elucidation VI, OC III.64/LO 574; *Treatise* I, art. 4, OC V.19.

([49]) Malebranche repeats the Cartesian thesis according to which the essence of matter reduces to extension in length, width, and breadth; see *ST* III-1.1.1, OC I.382/LO 198 (cf., e.g., Descartes, *Principl*es II,4).

([50]) Malebranche provides a summary of the physics of Descartes in *ST* VI-2.4. It is principally in physics that the Cartesian method demonstrated its usefulness in relation to that of Aristotle; see *ST* VI-2.7, OC II.382/LO 453.

([51]) See *Christian Conversations* I, OC IV.15. Cf. Descartes, *The World*, chs. 1 and 2.

([52]) Malebranche rejects attraction (inconceivable by a clear and distinct idea) to retain only impulse; see in particular *ST* VI-2.8, OC II.403–4/LO 500.

([53]) The first demonstration of occasionalism is provided in *ST* VI-2.3; cf. Elucidation XV. According to Malebranche, occasionalism allows for the end of the paganism of scholastic physics, which claims to see in bodies forces and occult faculties. Cf. Descartes, *The World*, ch. VII, AT XI.37/CSM I.92–3.

([54]) He subscribes to the cardinal theses of Cartesian cosmology, notably the theory of the three elements that constitute matter.

([55]) See Rodis-Lewis 1963: 157–62.

([56]) Elucidation X, OC III.153/LO 626. On the epistemic level, the individuation of bodies occurs by means of the projection of sensations on indeterminate extension: "The sensations of color that the soul attaches to shapes renders them particular" (Elucidation X, OC III.149/LO 625; cf. OC III.154/LO 628).

([57]) See *ST* III-2.7,1–2. We therefore do not have a clear idea of what Descartes called the principal attribute of spiritual substance, namely, thought; see *ST* III-I.1.1, OC I.382/LO 198. On the Malebranchean theory of the soul, see Schmaltz 1996.

([58]) "lacking a clear idea of the soul, we know nothing about it"; To Dortous de Mairan, June 12, 1714/OC XIX.888.

([59]) Gueroult 1955: 41.

([60]) See the title of Meditation II, AT VII.23/CSM II.16; AT VII.33/CSM II.22 (at the end of the analysis of the piece of wax); Sixth Replies, AT VII.438–9/CSM II.295–6.

([61]) *ST* VI-2.6, OC II.369–70/LO 480–1. The discussion in this chapter is probably one of the most Cartesian that Malebranche provided. 480–1.

([62]) *ST* III-2.7.3, OC I.450/LO 237; III-2.7.4, OC I.451/LO 237–8; Elucidation XI, OC III. 163/LO 633. (explicitly directed against Descartes and the affirmation of the better knowability of mind).

([63]) Though imperfect in comparison to all the properties that an archetypal idea reveals to us, this feeling nonetheless remains veracious with respect to what it allows us to conclude; see *ST* III-2.7.4, OC I.451/LO 237–8, then 453/239.

([64]) *ST* III-2.7.4, OC I.453/LO 239. Malebranche very logically refuses to grant a soul to the beasts, with the “Cartesians”; see *ST* VI.2.7, OC II.390–2/LO 492–4.

([65]) Descartes has already distinguished between having a complete and perfect knowledge and knowing that we have it, the latter of which we cannot have if God does not reveal it to us; Fourth Replies, AT VII.220/CSM II.155.

([66]) Alquié notes that Descartes did not intend to construct a science of the soul conceived on the model of mathematical science, which would be similar to what is later called rational psychology.

Jean-Christophe Bardout

University of Rennes 1

The Prince of Cartesian Philosophers: Pierre-Sylvain Régis

Antonella del Prete

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Abstract and Keywords

Pierre-Sylvain Régis was considered as the “prince of the Cartesian philosophers”: he was a prominent conférencier and he had written a renowned textbook. But what is it to be Cartesian for Régis? His *System of Philosophy* is presented as an exposition of his master’s philosophy, incorporating the contributions of other heirs of Descartes and developing philosophical connections with other “moderns” such as Hobbes. Régis’s relationship with Malebranche, Cordemoy, and La Forge is quite complex: Régis does not hesitate to implicitly use their works while explicitly arguing with them. However, Régis is much closer to the metaphysical, psychological, and gnoseological theories supported by Desgabets: they both oppose the major current of Cartesianism, refusing to attribute any activity independent from the body to the soul. Studying the *Système* is an excellent way to understand what Cartesianism has become in the late seventeenth century: a huge stage where Descartes’s heritage is being interpreted in different ways.

Keywords: Pierre-Sylvain Régis, metaphysics, gnoseology, Desgabets, Malebranche, occasionalism

(p. 374) HIS contemporaries have issued a (nearly) unanimous verdict: Pierre-Sylvain Régis was considered as the “prince of the Cartesian philosophers”. Even his adversaries agree on this name: in fact, it is from the pen of the anti-Cartesian Pierre-Daniel Huet, in the dedication to his *New Memoirs to Serve as the History of Cartesianism* (*Nouveaux mémoires pour servir à l’histoire du cartésianisme*) (Huet 1693: 3–4; Bouillier 1854: I, 507–18). The judgment that Huet made concerning Régis is however not positive: a few lines later, he affirms that he is “today recognized in all the alleys and among the spiritual Ladies and virtuosos as the protector of subtle Matter, patron of Globules, and Defender of Vortices”. Other adversaries of Cartesianism are more lenient: the Jesuit Gabriel Daniel believes he finds in his pages “much sharpness, method, a great understanding of the dogmas of the sect that he embraces”; the hypothesis of the vortices is in his opinion set out with an “admirable order and [an] extraordinary clarity” (Daniel 1706: I, 336, 382).

The attention of these contemporaries concentrates on the physics set out in the most important work of Régis, the *System of Philosophy* (*Système de philosophie*).[1] What seems, on the contrary, to actually attract interest is his metaphysics: the themes most studied are his theory of ideas, his conception of substance, his theory of causality. After providing the reader with a summary of the facts concerning his life, we will attempt to situate Régis in relation to Descartes and to the different Cartesianisms of his era.

Most of the biographical information concerning Régis has reached us from the eulogy that Fontenelle pronounced on the occasion of his death. We learn that he was (p. 375) born in 1632 in Salvetat de Blanquefort, that he studied humanities and philosophy with the Jesuits of Cahors, and that he started to study theology in Paris. His discovery of the doctrine of Descartes produced a sort of conversion: this is not the reading of *Treatise on Man*, as in the case of Malebranche, but an encounter with Jacques Rohault, after which Régis abandons his studies at the Sorbonne to start his career as a Cartesian conférencier in the south of France. After having had much success in Toulouse, Régis follows the Marquis de Vardes to Aigues-Mortes, then to Montpellier. It is only in 1680 that he returns to Paris, where he continues to give lectures in Nicolas Lémery's house. Nearly ten years have passed since the first condemnation of Cartesianism in France, but the same Archbishop of Paris who acted in 1671, François de Harlay de Champvallon, asks Régis to suspend his lectures and suggests to him that he not publish his *System*. As Régis writes in his *Préface*, he had to wait ten years before being able to publish his work. The years that followed are filled with controversies: Régis responds on behalf of Descartes to the criticisms launched by Huet in his *Censure of Cartesian Philosophy* (*Censura philosophiae cartesianae*) (Régis 1691b), and he defends Descartes's opinions against Jean Du Hamel (Régis 1692). The dispute with Malebranche, who responds to criticisms addressed to him in the *System*, involved subsequent responses by Régis (Régis 1694a, 1694b). This dispute eventually reaches the Académie des sciences: several of its members intervene in favor of the Oratorian on the issue of the explanation of the apparent size of the sun and the moon on the horizon.

This dispute did not prevent Régis from becoming a member of the Académie when it is renovated, in 1699. He is however already ill, and does not often participate in its work. The fruit of his final effort is the publication in 1704 of the *Use of Reason and Faith* (*L'usage de la raison et de la foi*), where he clearly separates the domains of philosophy and theology. The volume closes with a refutation of Spinoza. Régis dies in 1707.[2]

1. The *System of Philosophy:* Origin, Structure, Characteristics

Let us go back to the origin of the *System*. Fontenelle claims that the permission to publish had been obtained "by force of the time and reasons". The correspondence of Pierre Bayle reveals to us that Régis made several attempts to publish his work in the United Provinces and in France, and that he constantly submitted to the pressure of Harlay.[3] When the *System* finally sees the light of day in France, the price that has been paid is ev-

ident: the title does not explicitly mention the name of Descartes (Régis 1690). It would have to wait for the Dutch edition of 1691 for the name of the French philosopher to be able to be freely displayed on the title page (Régis 1691a).

(p. 376) Do we have any indication of revision during the decade that separates the return of Régis to Paris and the publication of the *System*? Some help can come from a study of the sources: the anatomy and physiology of the Physics section is inspired by the example of the *Neurographia* of Raymond Vieussens, published in 1684. These sections must thus be posterior to the date of Régis's return to Paris. The information we have about the Morals section is even more detailed: the discovery of a manuscript of this part of the *System* dating from 1682 allows us not only to better date this section, but also to appreciate the significance of its rewriting. Several elements seem in fact to indicate that the original manuscript has been modified so as to avoid all accusations of Jansenism, which was most certainly one of the bêtes noires of Harlay. Yet though Harlay had prohibited Régis's public lectures, Régis nonetheless met with him in private "at certain regular times to hold forth on the same matters" as would have been treated in those lectures, as Fontenelle tells us. Eventually the modifications to Régis's text allowed him to obtain (finally!) the permission to publish.[4]

Régis presents his work as a "système". This lexical choice is not common at this time in Catholic countries:[5] the body of the work gives us, however, some indication of the sense that Régis gives to this word. It serves to indicate a set of disciplines, or truths, or of hypotheses linked by a necessary order, where what follows is explained by what precedes (Régis 1691a: I.preface, n.p.). In the preface to the Physics section he further specifies the relation existing between the system and the hypotheses: the system is only a collection of hypotheses, linked by a necessary order (Régis 1691a: I.275–6). Contrary to what Claude Perrault would have, the physicist is thus not authorized to follow several concurrent systems, if one of them seems capable of better explaining experience, but this is subject to the imperative of coherence. Régis has however a very latitudinarian conception of what a system is: he claims that we inherited only one from the ancients, and that this same system has been followed by Descartes. Contemporary physicists restrict themselves to adding hypotheses without modifying the whole. He agrees however with Perrault on the fact that there are two different parts of physics, the one that searches for causes and has a more speculative and philosophical character, and the other having a historical and practical nature, focusing on effects (Régis 1691a: I.274–5; Perrault 1680: I.preface, n.p.). We find in these passages a whole intellectual landscape, very typical of the Cartesian science of the time: on one hand, the reference to method, to the order of Cartesian reasons, and to the metaphysical foundations of physics; on the other, this fascination with experience, very close to a Baconian history of nature, which first made successful the *Mecredis* of Rohault, and Régis himself thereafter.[6]

The *System* is thus situated in a complex tradition. It inherits the Cartesian project of writing a manual of philosophy capable of replacing Scholastic texts. Much as his master, Régis appropriates notions belonging to the Aristotelian tradition and brings them into agreement with more properly Cartesian theses. Régis completes the tree of science with

sections that, by their content as well as their order, go beyond the original (p. 377) project of Descartes. The *System* is in fact divided into four parts, Logic, Metaphysics, Physics, and Morals. The order of the disciplines is (partially) Cartesian, in the sense that metaphysics precedes and founds physics. If the presence of morals corresponds very certainly to the project of Descartes, it is not the same for logic, which Descartes judged useless and had replaced by the four rules of the method and the invitation to follow the model of mathematicians. Régis, however, had predecessors in the Cartesian field: Johannes Clauberg tried in 1652 to provide Cartesian philosophy with a logic capable of beating the competition of Scholastic texts; the *Art of Thinking* (*Art de penser*) of Arnauld and Nicole had durably endowed the new philosophy with a precise instrument, which Régis appreciates to the point of following it sometimes to the letter.[7] If the ambition to write a section on morals is authentically Cartesian, the content of this section is not: a good part of its pages are in fact a transcription of the French translation of Hobbes's *De cive*, a text that had been integrated into the Cartesian encyclopedia by *Philosophy Divided into All Its Parts* (*La philosophie divisée en toutes ses parties*) of Jacques Du Roure, which appeared in 1654.[8] In relation to this work, the novelty of the *System* consisted in the fact that it embraced all disciplines and explicated them by linking principles and their consequences in a coherent whole (Régis 1691a: I.preface, n.p.). In writing in French, Régis also chooses not to address solely the academic audience: his ideal reader is constituted by the same public that filled the salons when his lectures took place, or by the great aristocrats and men of the Church desiring to be initiated in the new philosophy, such as the Marquis de Vardes or Harlay de Champvallon.

In utilizing philosophical notions and theories absent from the pages of his master, Régis does not present his work as a reconciliation between the ancient and the new philosophy: he resolutely takes a position in favor of Descartes. What is it to be Cartesian for Régis? This amounts to following the method and the principles of Descartes, in completing his encyclopedic project, without however pushing his fidelity to the point of not abandoning his explanations when one has demonstrated their inaccuracy. We have an example of this attitude in the neurophysiology of Physics. Régis accepts the criticisms that had been offered against the localization of the soul in the pineal gland since its first formulation, and that Nicolas Steno had supported by scientific evidence. Régis's choice to situate the superior operations of the understanding in an oval body, as Vieussens wanted, would in no way involve a change of party: to follow Descartes is to identify the anatomical structure and the physiological mechanism that permits the exercise of the functions of the understanding and will; scientific progress requires us to advance an explanation of detail different from that proposed by Descartes. Régis thus can legitimately affirm: "all that I have said [must] be attributed to *Monsieur Descartes*, the Method and the Principles of whom I have followed in the same explanations that are different from his" (Régis 1691a: I.preface, n.p.).

(p. 378) 2. Cartesianisms: Eternal Truths, Created Substances

Physics is not the only domain in which Régis manifests his independence in relation to his model. Fairly striking examples are provided also in his Metaphysics. The discipline of metaphysics is presented as the foundation of other sciences: we recognize here the structure of the Cartesian tree. As to its object, the declarations of the Preface seem to limit it to knowledge of the soul: the text of Régis, however, consecrates important chapters to God and his attributes (Régis 1691a: I.63–5). The following pages testify to changes concerning both the order of demonstrations and the expressed contents. Régis in fact alternates, in the initial chapters of Metaphysics, an analytic exposition, founded on the analysis of the notions we possess, and a synthetic exposition, enunciating the axioms that will be at the foundation of the following demonstrations. In being inspired by the precepts of the *Discourse on the Method*, which counsels starting from what is best known to arrive subsequently at other objects of knowledge, more distant and more complex, Régis contributes to an eclipse of doubt that is distinctive of Cartesian posterity: it is not doubt but knowledge of external objects that founds the *cogito* (Régis 1691a: I.68). This change accomplishes a more profound revision of Cartesianism than we find in other authors. Régis agrees in fact with the conception of substance elaborated by Dom Robert Desgabets. The Benedictine accepts the Cartesian theory of the creation of eternal truths. He holds that neither the truths nor created substances can change, because the substances are “indefectible” and deprived of duration. Modes, on the contrary, participate in time and their existence can end. Extension and thought are the only created substances; bodies are modes.[9] Régis not only embraces this definition of substance, but also utilizes it in his polemic with Malebranche. What we find in his pages, in effect, is not Cartesian vocabulary, but Scholastic vocabulary opposed to the statements of the Oratorian. Régis denies that one can properly speak of eternal truths, in the name of his distinction between divine eternity and the perpetuity of created substances: truths are thus immutable, but they are not eternal (Régis 1691a: I.177–81). God sees all things in his will, and not in his own perfections; he does not consult “order” or “universal reason” before acting, and he does not act by “general volitions”; we do not see truths in God (Régis 1691a: I.90–2, 181).

Régis, however, goes further than Desgabets in his abolition of individual substances. He follows Desgabets when he claims that extension is the only material substance, produced immediately by God, while bodies are modes and are produced by secondary causes. But Régis goes beyond the Benedictine when he distinguishes between mind and soul. Mind is a substance that thinks; the soul is the relation, the union of this (p. 379) mind with its body. If such is the definition of the soul, it follows that it is not a substance, but a mode. The same definition is applied to the man (Régis 1691a: I.71–2, 113, 159). This choice, which is clearly opposed to the declarations of Desgabets, constitutes at the same time a continuity with and a rupture from Descartes. On the one hand, it corresponds to a very evident lexical disposition: in the writings of Descartes it is nearly always a question of mind or *mens*, the soul being put into play only when it concerns its immortality or the

passions that affect it, showing thus the close union that it has with its body. On the other hand, Régis thus is opposed to the Scholastic theory that makes the soul the substantial form of the body, a doctrine that the Council of Vienne had consecrated and that Descartes had embraced, in declaring that the soul is the only substantial form the existence of which is admitted, in affirming that man is an *ens per se*, in holding finally that the union of soul and body is a substantial union.

One could object however that, due to the distinction that Régis establishes between mind and soul, the properties that traditionally were attributed to this latter are conferred on the former: we can suppose that this innovation concerns more the theory of the union of soul and body than that of mental substance. In sum, Régis could not be accused of Spinozism in this regard: minds would be in all respects individual and distinct substances, and not modes.[10]

It is true that Régis speaks more often in the plural about minds, separate souls, and the angels. Several elements, however, oppose this conclusion. When Régis refutes the Spinozistic demonstration of the unity of substance, in effect he agrees “that we cannot conceive any attribute in spiritual substance by which it can be divided […] no substance, as substance, can be divided, not even corporeal substance” (Régis 1704: 496–7). At the same time, only faith shows us that angels differ among themselves. It is different for souls, because they are united to a particular body and thus are distinguished numerically among themselves (Régis 1704: 374–5). This differentiation disappears, however, after death. Consequently, Régis describes separated souls as beings deprived of all the mental functions that were proper to them during their union with their body: they have neither imagination, nor memory, nor understanding, nor will; they do not act, because they can be determined to act neither by themselves, nor by God, nor by body (Régis 1691a: I, 267–71). Despite the respect that he formally attributes to Catholic dogmas, by his theory of substance Régis is closer in this respect to Spinoza.[11]

Régis escapes however the accusation of monism: in the *Use* he decides to refuse the analogy between God and created substances, which refusal was already present in the *System*, and he makes God to be a “super-substantial” being, in order to make the distance between God and other substances insurmountable (Régis 1704: 60–1).[12]

(p. 380) 3. Cartesianisms: Gnoseology

To this ontological difference between mind and soul corresponds a gnoseology different from that of Descartes. When Régis treats the union of soul and body, he connects to the body and its motions all the thoughts of the soul and defines their relation as a dependence (Régis 1691a: I.118–20, 122–3). Cordemoy spoke of the relation binding soul and body. Particularly, with La Forge and Malebranche, he embraced the Cartesian conviction that there is an activity of the soul, that of understanding and will exhibited when they act without relying on the imagination, senses, passions. The gnoseology of the *System* is, on the contrary, tripartite and modeled on the theory of the distinction between mind and soul. When Régis introduces us to the mind, he often follows Descartes. The mind thus

has an innate idea of perfect being that precedes all other ideas and is essential to them; it also knows itself by its own substance as a substance that thinks (Régis 1691a: I.80, 83–4, 161, 192).

Régis follows however the opinion of Desgabets: man does not have pure ideas. That is to say, as a result of the union with its body, the soul inherits knowledge of the mind and acquires the idea of extension. This knowledge, however, even if by nature preceding what is given by the senses, is in man always accompanied by sensations: it is thus confused and obscure, a statement that applies both to the object of reason and to the products of the consciousness (Régis 1691a: I.146, 157–61, 165, 191, 193–5).

Régis uses a Scholastic classification of causes to describe the relations between sensible objects and our ideas: the former are the secondary causes of our idea of extension, which precedes our experience of these objects at least by nature. However, the objects are exemplary causes of our ideas of particular bodies, which causality guarantees the truth of our representations. Just as with Desgabets, Régis embraces a form of realism: our ideas represent objects just as they are. Unlike Desgabets, however, Régis gives a causal explanation of this property: it is because objects are exemplary causes of our ideas, and because such causes must contain the same perfections that are in their effects, that our ideas are images faithful to what they represent (Régis 1691a: I.77–8). This causal translation of the Cartesian theory of objective reality permits Régis to state a demonstration of the existence of bodies from our ideas (Régis 1691a: I.74–5, 81).[13]

The rejection of the pure activity of the soul in Régis has a corresponding physiology. The description of the operations of the imagination, memory, the understanding, and the will exposed in the *Physique* is elaborated by numerous borrowings from La Forge and Malebranche. However, Régis omits any mention of a pure activity of the soul, which is present in his sources (Régis 1691a: III, 293–332).

The view of the tripartition of human knowledge (involving innate ideas of the mind, the innate idea of extension, and adventitious ideas of sensory objects) evolves in the *Use*. First of all, Régis does not seem very interested in clearly distinguishing mind (p. 381) and soul. In relation to the *System*, not only does he care more about the soul, neglecting the body, but he insists on the sensible origin of ideas: he even manages to rehabilitate the Peripatetic adage, *Nihil est in intellectu quod prius non fuerit in sensu* (Régis 1704: 30, 105–7). He then develops a sensualist translation of innatism: innate ideas are such because they are inseparable from the soul and they are not acquired during our life. They are not innate in the sense that they are independent of the senses. Régis must therefore modify the explanation that he had previously given of the capacity to represent the infinity proper to the ideas of God and extension: this capacity does not derive from the fact that these ideas precede our sensible experiences insofar as infinity precedes the finite, but from the fact that every idea must represent the qualities of its exemplary cause (Régis 1704: 20–1, 26, 108).

4. An Anti-Malebrancheian Cartesianism?

Régis not only moves away from Descartes, while aiming for the establishment of a Cartesian system, but he sometimes takes a very clear position in relation to debates that oppose the heirs of Descartes. His relation to Malebranche is absolutely exemplary of the manner in which Régis appropriates the same works that he criticizes and establishes them in a very complex relation consisting of textual revisions, modifications, and refutations. A reader of the works of Malebranche thus can note that they are often tacitly present in the writings of Régis and sometimes provide their underlying texture. What occupies center stage however is polemic. Malebranche is explicitly critical of the *System*, and his objections trigger a very lively controversy. The first critique that Régis addresses to the Oratorian concerns the vision in God; the second, the Malebrancheian theory according to which pleasure always makes us actually happy; the third attacks the Malebrancheian explanation of the apparent size of the moon on the horizon (respectively, Régis 1691a: I.184–8, 245–6; III.244–6). In formulating these objections, Régis advances into a space crossed by a polemic raging for seven years—which opposes Arnauld to Malebranche—and takes sides in favor of the Jansenist. Régis believes in fact that we know by ideas and by sensations, that these ideas are modifications of our soul, and that they represent the infinite, even though they are not infinite: like Arnauld, he maintains in this regard his faithfulness to the Cartesian theory of ideas, which he uses against his adversary. Régis believes equally that Malebranche verges on hedonism: Régis embraces the Cartesian theory of inner satisfaction and opposes the opinion of the Oratorian according to which all pleasure makes us actually happy.[14] The very lively tone of Malebranche's response is also explained by the fact that he sees in Régis an avatar of Arnauld.

(p. 382) These are not the only Malebrancheian theories that Régis attacks in his work. The refusal of the vision in God is for example based on two other criticisms addressed, this time tacitly, to the Oratorian: God must not be defined as entire being or being in general, if we want to respect his unity; he acts neither by general volitions, nor in consulting order or universal reason, because nothing precedes his decrees (Régis 1691a: I. 86, 91–2; III.425).

However, other passages from the *System* testify to a relation to Malebranche's *Search After Truth* (*Recherche de la vérité*) that is far from being purely and simply polemical. The description of the functions of the imagination that Régis gives in his Physics draws at the same time on the *Treatise on the Human Mind* (*Traité de l'esprit de l'homme*) of La Forge and on the pages that Malebranche has devoted to the imagination. Régis uses not only general physiological explanations, but also certain traits specific to Malebrancheian theory, such as the description of strong imaginations and the communication between the mother and her fetus. Also Malebrancheian is the explanation of memory and habits, with the weighty difference that Régis denies the existence of intellectual memory and gives a physiological explanation of spiritual habits (Régis 1691a: III.293–332).

Even more interesting is the use that Régis makes of Malebranche in his description of the passions. His text consists in a scholarly montage of Descartes's *Passions of the Soul* and of the *Search After Truth*. While retaining Descartes's text as a principal source for the account of the physiology of the passions, Régis nonetheless derives joy, sadness, and desire from love and hate. A comparison of the *System* and the *Search* lets us see that Régis agrees with Malebranche with respect to the importance given to love and hate and to the classification of desire, joy, and sadness as derived passions. As in the case of the Oratorian, he brings all the passions back to self-love (*amour-propre*): the demotion of joy, sadness, and desire, insofar as these are passions derived from love and hate (or aversion), thus functions, in Régis as well as in Malebranche, as a reduction of all passions to self-love.

The description of self-love derives, however, from other sources. Régis modifies the Malebrancheian theory of natural inclinations: he uses the classification proposed in the *Search After Truth* but he does not take them to be tendencies proper to the mind alone, as is the case with Malebranche. On the contrary, he affirms that they derive from the union of mind and body: suddenly, the principal natural inclination is not love of the good in general, as in Malebranche, but self-love. Even the definition of this inclination changes in the *System*: although for Malebranche it includes both the desire to conserve one's own being and the desire for well-being, according to Régis self-love aims only at the conservation of the union of soul and body. The other natural inclinations are thus reduced to the inclination for self-conservation (Régis 1691a: I.215–17).

This refusal of all pure activity of the soul is consistent with Régis's metaphysical principles, but it serves also for the construction of his moral theory, because it allows him to articulate a Malebrancheian and Hobbesian anthropology, by way of Pierre Nicole. Régis borrows from Jansenism the distinction between ignorant self-love and enlightened self-love, but he remains faithful to Malebranche in affirming that (p. 383) enlightened self-love is not put out by sin, because it is "an effect of the rest of the light that God infused in the human soul in forming it" (Régis 1691a: III.407; but see in general III.403–7). Concern for self-conservation is an element of the Hobbesian anthropology that Régis highlights: it eclipses the other elements that animate the Hobbesian description of the state of nature. The political state is thus not engendered by the passions, as is the case in *De cive*, but it is the product of the rational choice of the most appropriate means to safeguard one's life.

Enlightened self-love reconciles the search for self-conservation not only with the laws of nature, but also with biblical precepts to honor God and to do unto others what one would want done to oneself (Régis 1691a: III.409–12, 421–2). It is thus able to found a human society that not only functions perfectly, but also is truly moral. Régis does not entirely eliminate the qualitative difference between Christian and natural truths, since he admits that only Christians recognize the supernatural glory of God, whereas others only contribute accidentally to his glory. However, he defines Christian beatitude in this life with the help of a letter to Elisabeth of Bohemia in which Descartes aimed only to determine

this notion in an entirely worldly and secular way (Régis 1691a: III.542–3; AT IV.276–7/ CSMK 261–2).[15]

Régis's attitude toward his Cartesian sources is thus eminently utilitarian. He uses them to emphasize and to enrich the philosophy of Descartes. Even if a study of the sources of the *System* reveals that its pages are composed of a scholarly collage of citations, the final effect is coherent, because Régis chooses passages that serve to articulate his fundamental theses. This implies a distortion, sometimes important, of the original intention of the source utilized. This is the case with Malebranche: if we analyze not only the criticisms that Régis addresses to him, but also the case of the positive recovery of his opinions, we find that, as will other eighteenth-century authors, Régis profits from the separation of mind and body spread throughout the works of the Oratorian to set on center stage his mechanistic explanations of human physiology and to let them show themselves.[16] As with Desgabets, Régis opposes himself to Malebranche (and to the Descartes of the *Meditations*): the functions of the soul are inseparable from those of the body.

5. From the *System* to the *Use*: Occasional Causes

If we limit ourselves to a perusal of the table of contents of the *Use*, we can easily have the impression that the first two books of this text only summarize, synthetically, what Régis had presented in the *System*. This however is a false impression. Henceforth free to (p. 384) present his opinions, without being concerned to speak in the name of Descartes, Régis modifies his previous affirmations in several places. We have already noted the changes that Régis makes to his definition of God and to his gnoseology. We will limit ourselves to presenting one further example.

In the *System* Régis opposes occasionalism with arguments that are not without relation to the criticisms that Arnauld had addressed to Malebranche on the same topic: far from exalting the independence of God, the Oratorian submitted divine action to occasional causes, making them necessary to determine his action (Régis 1691a: I.110).[17] Régis's theory of causality derives from his ontology: God, insofar as he is the primary cause, immediately creates substances, which are indefectible, because the divine will is immutable and because their conservation is a continued creation (Régis 1691a: I.101, 110). Secondary efficient causes are responsible for the succession of modes, which they produce immediately (Régis 1691a: I.110).

Secondary causes thus guarantee at the same time the presence of the action of God in nature and respect for divine immutability and simplicity. But suddenly, the relation between the two kinds of causes can take on the appearance of the relation between the efficient cause and the occasional cause in Malebranche. Not only does Régis use an occasionalist vocabulary when he discusses the relations between the soul and the body (Régis 1691a: I.128, 129, 131, 132, 162, 189, 254, 262), but he describes in Male-

brancheian terms the relation between moving force in general and the particular motions that act on bodies. In order to preserve the immutability and simplicity of God, he affirms in fact that it is particular bodies (or souls, in the case of voluntary motions), and not the specific volitions of God, that determine general motion, causing the succession of modes that we experience (Régis 1691a: I.310–13, 331; III.74–6). In these pages we find the same Malebrancheian theory that Régis will hold in the *Use* to be one of the errors of occasionalism, that is the idea that motion is the will of God (Régis 1691a: I.311, 1704: 208).

This is not the only difference that separates the theory of causality in these two works. Régis modifies as well his attitude toward two different explanations of the relations between divine and human causality of voluntary acts. In the *System* he marks his opposition to both the theory of physical premotion and the theory of concurrence. Partisans of the former think that the causal action of God immediately determines our volitions; adepts of the latter describe his action as cooperating with the action of volitional agents to produce these effects. According to Régis, the former position falsely holds that God immediately produces modes, whereas the latter position falsely holds that modifications derive from two separate actions (Régis 1691a: I.215). In the *Use*, on the contrary, he instead tries to show that his opinions are compatible with these two explanations (Régis 1704: 181–3, 190–3).[18]

(p. 385) That is not all: while in the *System* Régis had declared at the same time that secondary causes are instruments and that they have neither a real and positive action nor a proper causality (Régis 1691a: I.125, 180, 214), in the *Use* the description of secondary causes as instrumental causes is followed by a polemic against Malebranche, in which these causes are described as real, positive, and efficacious (Régis 1704: 206, 208). What makes the difference between the primary cause and secondary causes is henceforth the absence of the independence of the latter, and no longer the lack of efficacy or action (Régis 1704: 180; see also Régis 1692: 82–6). The division between secondary causes and occasional causes is situated, in the end, between the determination of an intelligent subject to act, without contributing to his action, and the contribution to the action of the primary cause (Régis 1704: 202). A comparison of the *System* and the *Use* thus allows us to conclude that Régis's theory of causality, while presented in 1690 as opposed to occasionalism, evolves from a position where it is possible to locate many points of contact with Malebranche to a very clear opposition that places in the foreground an agreement with the Scholastic theories of physical premotion and concurrence.

6. Conclusion

Régis wants to be a partisan of Descartes. His *System* presents itself as an exposition of the philosophy of the master, capable of profiting from the contributions of other heirs of Descartes and of implementing philosophical connections to other "moderns" such as Hobbes. It is necessary to wait on the *Use* to hear Régis's own voice: this work is thus more coherent than the *System*, which sometimes does not strike a balance between tra-

dition and innovation. Régis borrows from the different Cartesianisms, that clash in his day:[19] these opinions thus are sometimes close to those of Arnauld, and they often embrace the metaphysical, psychological, and gnoseological theories formulated by Desgabets. In taking a position contrary to Malebranche, Cordemoy, and La Forge, Régis does not hesitate to tacitly use their works. Should one retain the category of "Radical Cartesianism" for Régis, as Tad Schmaltz proposed some time ago? The response is determined by what we understand by 'radical'. It is negative if we give a political sense to this term, or also if we attach to it a kind of critique of religion: despite the condemnations suffered, we do not have any reason to doubt the sincerity of the religious belief of Régis. It can be positive if by this adjective we want to indicate that Régis, as well as Desgabets, is opposed to a major current of Cartesianism, in refusing to attribute to the soul all activity independent of the body. Or again if we consider that his theory of substance threatens to make personal identity something transitory, deprived of a substantial foundation.

Translation by Tad Schmaltz

References

Antoine-Mahut, Delphine, ed. (2014), *Les malebranchismes des Lumières: Études sur les réceptions de la philosophie de Malebranche, fin XVII^{e} et XVIII^{e} siècles*. Paris: Champion.

Ariew, Roger (2006), "Descartes, the First Cartesians and Logic", *Oxford Studies in Early Modern Philosophy* 3: 241–59.

Ariew, Roger (2011), "Ethics in Descartes and Seventeenth Century Cartesian Textbooks", in Carlos Fraenkel, et al. (eds.), *The Rationalists: Between Tradition and Innovation*. Dordrecht: Springer, 67–76.

Ariew, Roger (2014), *Descartes and the First Cartesians*. Oxford: Oxford University Press.

Armogathe, Jean-Robert (2015), "Préface", in Pierre-Sylvain Régis, *La Morale ou les devoirs de l'homme raisonnable, de l'homme civil et de l'homme chrestien (1682)*, ed. S. Matton. Paris: Séha, and Milan: Archè, v–xiv.

Bouillier, Francisque (1854), *Histoire de la philosophie cartésienne*. Paris: Durand, and Lyon: Brun & Co.

Canziani, Guido (2015), "Entre Descartes et Hobbes: la morale dans le *Système* de Pierre-Sylvain Régis", in Pierre-Sylvain Régis, *La Morale ou les devoirs de l'homme raisonnable, de l'homme civil et de l'homme chrestien (1682)*, ed. S. Matton. Paris: Séha, and Milan: Archè, 59–136.

Clarke, Desmond M. (1989), *Occult Powers and Hypotheses: Cartesian Natural Philosophy under Louis XIV*. Oxford: Clarendon Press.

Daniel, Gabriel (1706), *Voyage du monde de Descartes: Nouvelle édition*. Amsterdam: Pierre Mortier.

Del Prete, Antonella (2011), “Un cartésianisme ‘hérétique’: Pierre-Sylvain Régis”, *Corpus* 61: 189–203.

Del Prete, Antonella (2015), “Du bon usage de l’amour-propre: la morale de Régis”, in Pierre-Sylvain Régis, *La Morale ou les devoirs de l’homme raisonnable, de l’homme civil et de l’homme chrestien (1682)*, ed. S. Matton. Paris: Séha, and Milan: Archè, 137–57.

Del Prete, Antonella (2016), “Per una mappa del cartesianesimo. Il *Système de philosophie* di Pierre-Sylvain Régis”, *Studi filosofici* 49: 95–112.

Del Prete, Antonella (2017), “Régis e Malebranche: un rapporto complesso”, *Laboratorio dell’ISPF* 14: 2–11.

Des Chene, Dennis (2002), “Cartesian Science: Régis and Rouhault”, in Steven Nadler (ed.), *A Companion to Early Modern Philosophy*. Malden and Oxford: Blackwell Publishing, 183–96.

Easton, Patricia A. (2009), “What is at Stake in the Cartesian Debates on the Eternal Truths?”, *Philosophy Compass* 4: 348–62.

Fontenelle, Bernard le Bovier de (1756), *Éloges des Académiciens de l’Académie Royale des Sciences morts depuis l’an 1699*. Paris: Libraires associés.

Gasparri, Giuliano (2007), *Le grand paradoxe de M. Descartes: La teoria cartesiana delle verità eterne nell’Europa del XVII secolo*. Firenze: Olschki.

[Huet, Pierre-Daniel] (1693), *Nouveaux mémoires pour servir à l’histoire du cartésianisme. Par Mr. G. de l’A*. Utrecht: Guillaume vander Water.

Kieft, Xavier (2015), “Une morale rappelée à l’ordre? Régis et l’invention du cartésianisme autorisé”, in Pierre-Sylvain Régis, *La morale ou les devoirs de l’homme raisonnable, de l’homme civil et de l’homme chrestien (1682)*, ed. S. Matton. Paris: Séha, and Milan: Archè, 19–34.

Leibniz, Gottfried W. (2009), *Sämtliche Schriften und Briefe*, vol. II.2. Berlin: Akademie Verlag.

(p. 387) Lennon, Thomas M. (1994), “The Problem of Individuation among the Cartesians”, in Kenneth F. Barker and Jorge J. E. Garcia (eds.), *Individuation and Identity in Early Modern Philosophy: Descartes to Kant*. Albany, NY: State University of New York Press, 13–39.

Milani, Nausicaa E. (2012), “L’*Art de penser*, nella logica del *Système* di Régis”, *Annali della Scuola Normale Superiore di Pisa* 5/4: 517–55.

Miller, Timothy D. (2008), “Desgabets on Cartesian Minds”, *British Journal for the History of Philosophy* 16: 723–45.

Mouy, Paul (1934), *Le développement de la physique cartésienne, 1646–1712*. Paris: Vrin.

Nadler, Steven (2011), *Occasionalism: Causation among the Cartesians*. Oxford: Oxford University Press.

Ott, Walter (2008), “Régis’s scholastic mechanism”, *Studies in History and Philosophy of Science* 39: 2–14.

Perrault, Claude (1680), *Essais de physique*. Paris: Jean Baptiste Coignard.

Régis, Pierre-Sylvain (1690), *Système de philosophie, contenant la logique, la métaphysique, la physique et la morale*. Paris: Thierry.

Régis, Pierre-Sylvain (1691a), *Cours entier de philosophie; ou, Système general selon les principes de M. Descartes*. Amsterdam: Huguetans.

Régis, Pierre-Sylvain (1691b), *Réponse au livre qui a pour titre “P. Danielis Huetii, Censura philosophiae cartesianae”*. Paris: Jean Cusson.

Régis, Pierre-Sylvain (1692), *Réponse aux reflexions critiques de M. Du Hamel*. Paris: Jean Cusson.

Régis, Pierre-Sylvain (1694a), *Premiere replique de Mr Regis a la Reponse du R. P. Malebranche prestre de l’Oratoire*. Paris: Jean Cusson.

Régis, Pierre-Sylvain (1694b), *Seconde replique de Mr. Regis a la Reponse du R. P. Malebranche, prestre de l’Oratoire. Troisième replique au R. P. Malebranche, prestre de l’Oratoire*. Paris: Jean Cusson.

Régis, Pierre-Sylvain (1704), *L’usage de la raison et de la foi, ou l’accord de la foi et de la raison*. Paris: Jean Cusson.

Roux, Sophie (2013), “Was there a Cartesian Experimentalism in 1660s France?”, in Mihnea Dobre and Tammy Nyden (eds.), *Cartesian Empiricism*. Dordrecht: Springer, 47–88.

Sangiacomo, Andrea (2016), “From secondary causes to artificial instruments: Pierre-Sylvain Régis’s rethinking of scholastic accounts of causation”, *Studies in History and Philosophy of Science* 60: 7–17.

Schmaltz, Tad M. (2002), *Radical Cartesianism: The French Reception of Descartes*. Cambridge: Cambridge University Press.

Schmaltz, Tad M. (2005), “French Cartesianism in Context: The Paris Formulary and Regis’s *Usage*”, in Tad M. Schmaltz (ed.), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*. London and New York: Routledge, 73–86.

Schmaltz, Tad M. (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. Oxford: Oxford University Press.

Scribano, Emanuela (1988), *Da Descartes a Spinoza: Percorsi della teologia razionale del Seicento*. Milano: Franco Angeli.

Solère Jean-Luc (1995), “Tout plaisir rend-t-il heureux? Une querelle entre Arnauld, Malebranche et Bayle”, *Chroniques de Port-Royal* 44: 351–79.

Thiel, Udo (1997), “Epistemologism and Early Modern Debates about Individuation and Identity”, *British Journal for the History of Philosophy* 5: 353–72.

Notes:

([1]) Simon Foucher, writing to Leibniz, enumerates the many debts of the *Physique* of Régis to his contemporaries: see Leibniz 2009: 421–2. See the comments in Ariew 2011: 67–76; but on Régis’s sources, see also Mouy 1934: 144–66.

([2]) See Fontenelle 1756: 136–49.

([3]) Del Prete 2016: 104–5.

([4]) See Kieft 2015: 19–34.

([5]) Armogathe 2015: vi–viii.

([6]) See Clarke 1989: 131–52, 192–221, 228–38; Des Chene 2002: 183–96; Schmaltz 2017: 269–72, 300–6; and, for a critique of the notion of “Cartesian empiricism”, see Roux 2013.

([7]) Ariew 2006: 256–7; and Milani 2012: 517–55.

([8]) Ariew 2014 constitutes an indispensable tool for the comprehension of the Cartesian manuals. For an analysis of the presence of Hobbes in Régis, see Canziani 2015.

([9]) For the theory of eternal truths in Régis, see Scribano 1988: 92–100; Gasparri 2007: 178–88; Easton 2009: 348–62. For the theory of substance and time in Desgabets and Régis, see the illuminating pages in Schmaltz 2002: 88–129.

([10]) For the debate concerning the proper interpretation of the theory of thinking substance in Régis, see Lennon 1994: 13–39; Thiel 1997: 353–72; Schmaltz 2002: 210–12; Miller 2008: 724–8.

([11]) See Scribano 1988: 92–100; Schmaltz 2002: 113–219, 156–7; Miller 2008: 724–7.

([12]) Del Prete 2011: 189–203.

([13]) Schmaltz 2002: 143–7, 148–50.

([14]) Solère 1995: 351–79; Del Prete 2017: 2–11.

([15]) Del Prete 2015: 137–57.

([16]) For interpretations of Malebranche in the eighteenth century, see Antoine-Mahut (2014).

([17]) On the different kinds of occasionalism, see Nadler (2011), and Schmaltz (2017: 165–227).

([18]) Sangiacomo (2016: 7–17) rightly points out—contrary to the view in Ott (2008: 2–14)—that the position of Régis differs from that of Thomas. Ott relies primarily on the *Use*, where Régis does indeed try to show that his position is in line with Thomas's. However, the fact that Régis also endorses a Molinist position in this work tends to undermine Ott's argument. On the relation between faith and reason and on the theory of freedom in the *Use*, see Schmaltz 2005: 73–86.

([19]) An illuminating analysis of the different Cartesianisms available in the seventeenth and eighteenth centuries is offered to us in Schmaltz 2017.

Antonella del Prete

Tuscia University

Jacques Rohault and Cartesian Experimentalism

Mihnea Dobre

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Abstract and Keywords

This chapter explores the intellectual development of Jacques Rohault—although not considered one of the leading figures of the early modern period, well known among historians of science. It attempts to evaluate Rohault's Cartesianism and to present it in a more nuanced manner than it is usually illustrated in the literature. Focusing on his mature work, published only one year before his death in 1672, but also referring to his earlier activities in Paris and to the publication of his posthumous works, the chapter argues that his "Cartesianism" came rather late in his thinking, while his early activity concerns mathematics and mechanics. The reading endorsed in this chapter opens a fresh perspective on Rohault's experimentalism, suggesting a transition from practical mathematics to Cartesian natural philosophy.

Keywords: Jacques Rohault, Cartesianism, experimentalism, mathematics, natural philosophy

(p. 388) 1. Introduction

ALTHOUGH he is not considered one of the leading figures of the early modern period, Jacques Rohault is well known among historians of science. His Cartesian treatise on physics is oftentimes seen as a curiosity, given especially its puzzling reception and long life within a Newtonian context.[1] In the history of philosophy, he is taken to be the "champion of Cartesianism" and is depicted as Descartes's faithful follower, who was helping Claude Clerselier in the quest to promote the philosophy of their famous contemporary.[2] In both disciplines—history of philosophy and history of science—Rohault seems to represent a notable moment in the development of Cartesian philosophy. This (p. 389) chapter attempts to evaluate Rohault's Cartesianism and to present it in a more nuanced manner than it is usually illustrated in the literature.

In recent years, Rohault has received renewed attention. On the one hand, a new publication came out under his name: the *Physique nouvelle (1667)*.[3] The text is an unofficial version of his public conferences prior to the publication of the *Traité de physique* in 1671, a

book that was also reprinted recently.[4] On the other hand, a series of publications have examined Rohault's legacy and his place in the milieu of early modern philosophical debates.[5] A special interest has been given to his experimentalism.[6] All these developments exposed the need to evaluate Rohault better in the context of late seventeenth-century transformations in natural philosophy. In particular, these new findings, both in the available corpus of sources attributed to Rohault and in the type of problems discussed by the secondary literature, raise several concerns with respect to Rohault's Cartesianism. In order to remain within the space limits required for the current chapter, I offer a sketch of the issues at stake and provide a conclusion that can provide the starting point for further studies. To expound the problem of Rohault's Cartesianism, I focus my analysis on his mature work, which was published only one year before his death in 1672, but I also refer at times to his earlier activities in Paris and to the publication of his posthumous works.

2. Rohault's Life and Works

As far as Clair and other commentators portray him,[7] Rohault was born into a family of merchants, in Amiens in 1618.[8] He followed a Jesuit *collège*, from which he graduated in 1641. After that, Rohault is described as professor of mathematics in Paris, although we know remarkably little about his early activities. There is considerable confusion and puzzlement resulting from the few details we have regarding his life before 1660: he is depicted as one of Cyrano de Bergerac's closest friends, he has some connections with Molière, and he is praised as an able experimenter and reputed professor of mathematics. (p. 390) Yet, no substantial evidence is available to account for any of these claims or for his activities in the 1640s and 1650s.[9]

Moreover, during this period there is no printed work signed by Rohault. In fact, the first known publication is a treatise on fevers—which does not include his name—appended at the end of Descartes's *Le monde* in 1664.[10] The author of the *Discours de la Fiévre*—as Rohault's essay is titled—is introduced in the "Avis du libraire au Lecteur" as a "Philosophe & Mathematicien", who had already proved his skills by making new contributions to the study of "la Physique".[11] Curiously, the author of the "avis" claims to lack the permission to print the name of the two authors—the other treatise published with *Le monde* belongs to Géraud de Cordemoy—and assures the reader that both tracts were presented in one of the meetings of the Montmor Academy. Not only was this claim intended to convince the reader of the high quality of the writings, but something more is promised at the very end: "I shall strive, for your own satisfaction, to obtain from the author of the final Discours [Rohault], several treatises of greatest importance, which he assured me to have almost ready for the Press".[12] What was this author—the "libraire"—hoping to get from Rohault? By taking into account the recent publication of the *Physique nouvelle (1667)*, one can only speculate together with Sylvain Matton that it was a version of the famous *Traité de physique* of 1671.[13] However, the text mentions "several treatises of greatest importance" prepared by that date and I would like to suggest an alter-

native answer that would also frame Rohault's Cartesian commitments in a different manner.

The reputation Rohault builds in the 1660s is based on his connection with Claude Clerselier. In 1664, he married Geneviève Clerselier, so becoming the son-in-law of the editor of Descartes's unpublished writings.[14] All the available secondary sources seem to agree that Rohault's "Wednesday" conferences took place during the 1660s and that they were an efficient way to disseminate Descartes's ideas, not to mention that they were promoting the new philosophy to a large group of people of all social conditions.[15] The consequence usually derived from this is that Rohault's publication in 1671 of both the (p. 391) *Traité* and the *Entretiens sur la philosophie* are informed by his allegedly long-time Cartesian commitments. Since Rohault died one year after the publication of the two treatises, he was not able to deal with the reception of his writings, which Clerselier addressed nevertheless in his preface to the *Oeuvres posthumes*.[16] In this chapter, I attempt to sketch an alternative image and to question Rohault's Cartesian commitments, which I describe as a later addition to his lectures on mathematics and physics.

3. The *Traité de Physique*

Rohault's treatise on physics is a systematic book in which he deals with some of the most important topics of natural philosophy. It is structured in four parts and covers most of the themes that were examined in his famous Parisian conferences. It starts with a general account of natural philosophy, including a brief discussion of some metaphysical parts of the Cartesian system, and moves to an extensive account of cosmology, of the earth and meteorological phenomena, and finally to an account of the human being. Only the final part of the treatise is missing from the earlier, unofficial, manuscripts.[17] The rest is presented, with some variations, in his public lectures. Given the uncertainty related to the text that was kept in the two copies of his conferences, there is no point speculating here about how Rohault might have altered his views.[18] Be that as it may, I have suggested elsewhere that Rohault's experiments do not change much over the 1660s.[19] What is however new in 1671 is the preface to the treatise, in which Rohault connects Descartes and Aristotle.[20] The problem with this association between ideas of the two philosophers is that it comes after Rohault had already complained about the poor status of natural philosophy, which was discussed "in a Manner too metaphysical".[21] How (p. 392) on earth could he present a system of natural philosophy as being based on Aristotle and Descartes altogether—two of the greatest metaphysicians in the history of philosophy—if metaphysics is an impediment in the development of natural philosophy?

The scholarship on Cartesian philosophy escapes the problem by simply claiming that Aristotle was playing a rhetorical role here, to capture the goodwill of Rohault's readers.[22] Yet the repeated use of Aristotle—see especially the next section on the *Entretiens*—and the attempt to find common ground between the two philosophical systems might reflect a different methodological approach. In order to explain it, I need to emphasize two aspects. First, one should not disregard the fact that Rohault was trained in

mathematics and his early career was built on the reputation of being a good teacher of mathematics and a skillful experimenter (including the invention and use of new instruments).[23] Second, Rohault was accustomed to solving particular problems by taking into account various hypotheses that were purportedly describing mechanical models aiming to explain the problem at hand. I have argued along these lines elsewhere.[24] I would reinforce that reading here and ground it on Rohault's hypothetical method, which he presents as the proper way to acquire knowledge of particulars. In fact, the reading would be similar to what Desmond Clarke has argued in the case of Louis de La Forge, where his analysis

> suggests a very different interpretation of the Cartesian programme of deducing hypotheses from the laws of nature to the one which might be implied by the language of mathematical demonstration. This much weaker link between axioms and hypotheses amounts to something like this: that the conceptual framework specified by the basic concepts and axioms of Cartesian physics provides the context within which all explanatory hypotheses must be articulated. In this sense, the axioms provide only a negative criterion for what is unacceptable in scientific explanation, rather than a positive contribution to the content of any given hypothesis. The axioms or laws only imply that one may not use concepts which have been debarred by the metaphysical propaedeutic to science, nor may one assume anything which contradicts the basic laws of nature. Apart from these restrictions, one may hypothesize anything one wishes.
>
> (Clarke 1989: 154–5)[25]

(p. 393) The reading I endorse here is based on the reconstruction of Rohault's method in my study on "Rohault's Cartesian Physics", but I would like to supplement it with some circumstantial evidence that—to my knowledge—has not been so far discussed by any of the modern commentators.[26] In brief, Rohault's method would consist in reducing the observed natural phenomenon to a causal explanation based on a series of conjectures, which are tested through various experiments. Theory and experimentation come into play jointly, as the theoretical framework—which is represented by a general mechanical system—stays under the scrutiny of the empirical investigation. Yet one should notice that no testing of the fundamental ontological principles is done.[27] Anyway, that would not be required in cases of particular experiments, where Rohault's only aim seems to be to accommodate his explanation to a mechanical structure of the natural phenomenon under investigation. As with Clarke's suggestion above, this creates a gap between more general principles—i.e. metaphysical—and a general physical system presented in the form of corpuscular and mechanical theory. Endorsing a bottom-up approach, the experimental agreement that Rohault expected is between his observed natural phenomena and this general physics. He disregards the other connection that was so important for Descartes and some of his followers—between a foundational metaphysics and the general principles of physics—so there is no account of a metaphysical physics in Rohault.[28] This read-

ing would cohere with his deep hypothetical commitment presented in chapter 3, article 6 of the first part of the *Traité*:

> If our Conjecture be otherwise well grounded, it does not lose its Probability, because we cannot upon the Spot explain by it a Property, which appears from new Experiment, of which we did not before think of: For it is one Thing to know certainly, that a Conjecture is contrary to Experience; and another Thing, not to see how it agrees to it; for though we don't see it to Day, we may see it to Morrow; or others who can see further than we, may at one time or other discover it.
>
> (Rohault 1987: 14)

This open possibility to deny an already offered (mechanical) explanation is not a paradox, as some of the existing scholarship claims on the basis of Rohault's Cartesianism,[29] but it can be explained precisely by the reconstruction of his method presented above.

Moreover, one must notice that Rohault's method is similar to variants of the method of hypotheses that were in use in the practical mathematics or the mixed-mathematics (p. 394) tradition.[30] They share comparable traits: conjectures, adequacy of the mathematical model to the observed natural phenomena, the possibility of altering hypotheses and providing a new explanation, and the search for regularities. As I indicated above, Rohault's fame in the period was due to his status as mathematician and to his public experiments, which turned out to be very popular (e.g. experiments illustrating his explanations of the magnetic phenomena, theory of vision, pneumatic trials, and some optical investigations).

Such a reconstruction of Rohault's method in natural philosophy is strengthened by a different, biographical detail, which offers circumstantial evidence to support my prior reading. I turn now to a source that was not discussed in the literature on Rohault: the royal privilege for the publication of the *Traité de physique*, where the text grants

> That he [Rohault] had composed several Treatises, which he wants to print & offer to the public, if he is granted with our Letter; among these, a *Treatise on physics, or of the Science of nature & that of Cosmography, seen by Mr. de Mezeray, our Counselor & Historiographer; the Fifteen Books of the Elements of Geometry by Euclid, the Practical Arithmetic; the Resolution of Plane & Spherical Triangles; the Practical Geometry; the Fortifications, the Mechanics & the Perspective*.[31]

It is worth pointing out that Rohault asked for permission to publish not only his natural philosophy—"a *Treatise on physics, or of the Science of nature & that of Cosmography*", which corresponds to the first two parts of the *Traité de physique*—but also his other mathematical writings. There was no plan for a metaphysics or a system presenting Descartes's natural philosophy.

The list of treatises he wants to publish in 1671 is similar to many other mathematical writings of the time, something that Clerselier will end up criticizing in his preface to the 1682 edition of Rohault's posthumous works, where he denounces the unfit original title

of “this Book, or rather this Collection of several various short Treatises on Mathematics”.[32] In fact, Clerselier feels the need to justify his choice—*Oeuvres posthumes*, a general and neutral label—and to explain why he would not give a more straightforward title for Rohault’s mathematical treatises: “it was necessary to disguise the title a bit; & instead of calling each Treatise by its name, we were obliged to grasp all of them together (p. 395) under this general and specious title of the *Posthumous Writings* of Mr. Rohault”.[33] Thus one finds that Clerselier wanted to keep the surprise of the content, so that more readers would buy the book. Clerselier introduces readers to a philosophical discussion, touching on several important issues, such as the relation between theology and other disciplines, the compatibility of Cartesian philosophy with religion, Rohault’s role in disseminating Descartes’s philosophy, the problem of the Eucharist, and how Rohault was a true believer.[34] These are all topics of concern for Clerselier, and only a small fragment of the preface is written to introduce Rohault’s texts, as “this Book is nothing else than a Collection of several various Treatises on Mathematics, which Mr. Rohault had customarily taught to those who gave him the honor to have him as Master”.[35] Clerselier offers in his preface the reading we are accustomed to: Rohault was a dedicated Cartesian, who worked hard to promote the work of his philosophical master and even attempted to save Descartes from the wave of criticism and condemnations that dominated French thought in the 1660s and early 1670s. But Clerselier’s last passage cited above and the list of publications for which Rohault had requested the permission to print might suggest a slightly different picture.

Rohault received in 1671 the right to publish his mathematical works, of which, incidentally, only one dealt with natural philosophy and general philosophical questions. That was the *Traité*, and one can only wonder what would have been the reception of the treatise if it had been issued together with the rest of Rohault’s lessons on mathematical topics. For the reading advanced in this chapter, this episode is crucial, as it suggests that Rohault was working mainly within a mathematical tradition. As argued above, his method shares important similarities with treatises on mechanics and other writings on applied mathematics. Yet his fame is due to his Cartesianism; so, what can be said about his philosophical views?

4. The *Entretiens sur la Philosophie*

In the same year as the publication of the *Traité*, Rohault prepared his most metaphysical work, the *Entretiens*. The royal privilege to print this treatise was offered not to Rohault, but to Michel Le Petit, and it was issued on December 5, for a request made on September 30. The history of this publication is remarkable, because it stirred an entire dispute concerning heresy, true faith, and ultimately the dangers of Cartesian philosophy for the (p. 396) Catholic church.[36] Some stories tell us that when Rohault was on his deathbed the archbishop of Paris, François de Harlay, tested his faith, yet this might only be a rumor conveniently spread by any of the parties to gain support for their future actions.[37]

The treatise is a dialogue between Rohault and M.N., an unnamed theologian from the Sorbonne. This conversation had already been presented by Rohault in a letter of June 10, 1671, which circulated before the publication of the treatise.[38] In the *Entretiens*, Rohault does his best to tackle some of the objections and concerns raised by his interlocutor. In line with the preface to the *Traité*, the dialogue begins with some very general principles that are Aristotelian. Rohault confesses:

> I have no other principles than his [Aristotle's]; I recognize together with him, Privation, Matter, and Form; I agree with the general notions he provides us about the substance and the accident; I do not understand anything else than what he understands by the words Essence and Quality; I reject the vacuum as well as he does; and far from admitting the Atoms, or the indivisibles of Epicurus, I demonstrate that Matter is divisible to infinity.[39]

These are indeed the general principles that any Scholastic philosopher would accept, but as M.N. remarks, they are too general and none would dispute them, so he provokes Rohault to give an account of particular things. The discussion enters into the metaphysics of matter, form, accidents, real accidents, modes, and sensible qualities. Rohault presents his view as an attempt to clarify Aristotle's concept of matter (*hyle*), but most of the attention is devoted to the problem of sensible qualities:

> The sensible qualities … consist only in the various sizes, different shapes, and the diversity of movements of their component little parts; However, notice that I do not say that the sensible qualities of bodies consist in the parts of these same bodies, which are substances; but in the size, shape, and movement of these parts, which are nothing else than accidents or modes.[40]

(p. 397) What is prominent in this explanation is Rohault's replacement of Aristotelian vocabulary with a Cartesian one. Rohault's solution is similar to those offered by other Cartesians of the time.[41] But the case is relevant for the account of the Eucharist. In 1671, Cartesianism came under a fierce theological controversy, which was mainly stirred by Robert Desgabets and by his use of Descartes's account from an unpublished letter to Mesland.[42] Although he discusses the problem of transubstantiation, Rohault does not take a controversial position here, holding a moderate account that he explains nonetheless as deriving from Descartes's views.

Since the first issue discussed in the *Entretiens* was solved in favor of the new philosophy, which is nevertheless presented as having the same explanatory power as the Aristotelian one—but with the key advantage that it requires a lesser number of principles, a strategy promoted also by Descartes—Rohault and his interlocutor move to another topic. M.N. confesses that, for him, the view that animals are mere machines is worrisome. Rohault's reply is worth mentioning here, as he claims that these objections are new to him. To M.N.'s fears that "there are several Philosophers who believe that animals do not have any consciousness, that are mere machines", Rohault responds "that this view does not concern me, I have always left others to dispute it and have never been preoccupied with it".[43] The two explore together the possibility of ascribing mechanical functions to ani-

mals, which would also make untenable the traditional Scholastic account of the sensible soul. Rohault develops a mechanistic explanation in which animals are described as mere machines.[44] He is neither the first, nor the only Cartesian to defend such a view, which explains the worries expressed in the opening of the dialogue initiated by M.N. In the end, Rohault claims that beyond any of the advanced conclusions, what remains is his method of philosophizing, because any new topic could be grasped by any person possessing the correct method.

This brief summary of the *Entretiens* is too short to give fair justice to the problems included in it, yet I have to conclude this section by indicating two philosophical aspects of Rohault's writing, which are relevant for the subject of the current chapter. One is his claim that he does not follow any other principle than Aristotle's—a remark that coheres with his earlier claims in the preface to the *Traité*—and second, Rohault's cautious attitude toward metaphysical topics. He pretends to have thought for the first time about some themes discussed in his conversation with M.N.—such as the animal-machine—suggesting, thus, that he does not have a complete philosophical grasp on these matters.

(p. 398) 5. Rohault's Cartesianism

In this chapter, I have attempted to provide a nuanced answer to the question of what kind of Cartesianism Rohault's is. Our customary image of his Cartesian commitments is inherited from Clerselier: Rohault was repeating Descartes's philosophical views and he only added experiments as illustration for his Cartesian principles. Indeed, Rohault's father-in-law devoted a lot of energy to portraying him as the key follower of Descartes. And as we observed in Clerselier's preface to the posthumous writings, it was Clerselier and not Rohault who entered into metaphysical topics. If Rohault had promoted a bottom-up approach, starting from particular problems and experiments to which he ascribed mechanical solutions, for Clerselier and other contemporaries, the metaphysical constraints of Descartes's system would have represented the starting point. Unfortunately, that is often seen as the only way to discuss Cartesianism.

This is also why Rohault's experimentalism is frequently perceived as an oddity, a peculiarity which is amplified by the rather late publication of his *Traité*, in 1671. As I have argued elsewhere, Rohault's experimentalism should be ascribed to an earlier date and any discussion about context, method, and contemporary experiments needs to take that into account. In this sense, Rohault's original experimental work is from the period before "radical experimentalism"—as it was called by a recent commentator—emerged in the Parisian salons of the 1660s.[45] In the current chapter, I have sketched an account that situates Rohault in the tradition of practical mathematics. As a professor of mathematics offering both private lessons and public lectures, Rohault was also concerned with hands-on problems—from the traditional mechanical machines, to fortifications, and to more particular issues, such as the use of mathematical instruments in different contexts. I referred above to the privilege to publish his works—the only permission requested by Rohault—which was granted for his *Traité* in 1671. But together with his famous treatise, he

was allowed to print a series of other writings on mathematical and mechanical topics. I would add here that the “several treatises of greatest importance” mentioned by the “libraire” in 1664 might better refer to Rohault’s mathematical texts, rather than only to his physics.

There are important similarities between Rohault’s use of hypotheses and Descartes’s strategy from the *Discourse*, but what is important to note in the *Traité* is his attempt to solve particular problems with mathematical tools. Even if a modern reader can criticize Rohault for not adding more mathematics and quantitative solutions to the discussed problems, what one could recognize nevertheless is the method he endorsed. In my view, it is precisely the use of this method across the *Traité* that facilitated a positive reception of his treatise later in the seventeenth century. To be fair, there are significant Cartesian themes incorporated into his mechanistic explanations. But if we look at his apparently confusing announcement that his philosophy relies equally on the principles (p. 399) of Aristotle and Descartes, perhaps his Cartesianism should be explained as a weaker form of adherence to general philosophical principles. According to the alternative reading sketched here, for Rohault, Aristotle’s general principles would be better exemplified by those of Descartes. Still, his main concern was to explain particulars and Cartesian natural philosophy was just a convenient theoretical framework in which to place his explanations in terms of mechanical structures of corpuscles in motion. It is not very different from what other natural philosophers of the period were doing and his conformity to a tradition of applying mathematics to particular problems in natural philosophy is mainly obscured by referring to Rohault’s work as “Cartesian”.

The alternative reading of Rohault’s contribution to Cartesianism suggested here is based on the view that Rohault’s philosophical views changed in the decade before the publication of his works. In my view, his commitment to the fundamental tenets of Cartesian philosophy would be a late addition. At the same time, his early formation as a mathematician and his engagement with various other, non-Cartesian, circles in the 1650s—the friendship with Cyrano de Bergerac, his lectures in various public conferences—would reflect a different set of concerns. This is not to downplay his association with Clerselier in the 1660s, which remains an important moment in his intellectual evolution. Yet the scholarship on Rohault and on Cartesian philosophy in general would benefit from recognizing more layers of influence, something that is concealed by the customary identification of Rohault with “the champion of Cartesianism”.

References

Alcover, Madeleine (1990), *Cyrano relu et corrigè: Lettres, Estats du soleil, Fragment de physique*. Genève: Droz.

Ariew, Roger (2011), *Descartes among the Scholastics*. Leiden: Brill.

Ariew, Roger (2014), *Descartes and the First Cartesians*. Oxford: Oxford University Press.

Armogathe, Jean-Robert (1977), *Theologia Cartesiana: L'Explication physique de l'Eucharistie chez Descartes et dom Desgabets*. The Hague: Martinus Nijhoff.

Balz, Albert G. A. (1930), "Clerselier (1614–1684) and Rohault (1620–1675)", *The Philosophical Review* 39: 445–58.

Bennett, J. A. (1991), "The Challenge of Practical Mathematics", in Stephen Pumfrey, Paolo L. Rossi, and Maurice Slawinski (eds.), *Science, Culture and Popular Belief in Renaissance Europe*. Manchester: Manchester University Press, 176–90.

Bouillier, Francisque (1868), *Histoire de la philosophie cartésienne*, 2 vols., 3rd edn. Paris: C. Delgrave.

Clair, Pierre (1978), *Jacques Rohault (1618–1672): Bio-Bibliographie*. Paris: Centre National de la Recherche Scientifique.

Clarke, Desmond (1989), *Occult Powers and Hypotheses: Cartesian Natural Philosophy under Louis XIV*. Oxford: Clarendon Press.

Cormack, Lesley B. (2017), "Mathematics for Sale: Mathematical Practitioners, Instrument Makers, and Communities of Scholars in Sixteenth-Century London", in Lesley B. Cormack, Steven A. Walton, and John A. Schuster (eds.), *Mathematical Practitioners and the Transformation of Natural Knowledge in Early Modern Europe*. Dordrecht: Springer, 69–85.

(p. 400) Dear, Peter (1995), *Discipline and Experience: The Mathematical Way in the Scientific Revolution*. Chicago: Chicago University Press.

Des Chene, Dennis (1996), *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*. Ithaca and London: Cornell University Press.

Des Chene, Dennis (2000), *Sprits and Clocks: Machine and Organism in Descartes*. Ithaca and London: Cornell University Press.

Des Chene, Dennis (2002), "Cartesian Science: Régis and Rohault", in Steven Nadler (ed.), *Blackwell Companions to Philosophy: A Companion to Early Modern Philosophy*. Malden: Blackwell, 183–96.

Descartes, René (1664), *Le monde*. Paris: Theodore Girard.

Dobre, Mihnea (2013), "Rohault's Cartesian Physics", in Mihnea Dobre and Tammy Nyden (eds.), *Cartesian Empiricisms*. Dordrecht: Springer, 203–26.

Dobre, Mihnea (2017), *Descartes and Early French Cartesianism: Between Metaphysics and Physics*. Bucharest: Zeta Books.

Domski, Mary (2013), "Observation and Mathematics", in Peter R. Anstey (ed.), *The Oxford Handbook of British Philosophy in the Seventeenth Century*. Oxford: Oxford University Press, 144–68.

Garber, Daniel (1992), *Descartes' Metaphysical Physics*. Chicago: University of Chicago Press.

Garber, Daniel (1996), "Descartes on Knowledge and Certainty: From the *Discours* to the *Principia*", in Jean-Robert Armogathe and Giulia Belgioioso (eds.), *Descartes: Principia Philosophiae (1644–1994)*. Napoli: Vivarium, 341–63.

Hattab, Helen (2009), *Descartes on Forms and Mechanisms*. Cambridge: Cambridge University Press.

Hattab, Helen (2011), "The Mechanical Philosophy", in Desmond Clarke and Catherine Wilson (eds.), *The Oxford Handbook of Philosophy in Early Modern Europe*. Oxford: Oxford University Press, 71–95.

Hoskin, Michael (1961), " 'Mining All Within': Clarke's Notes to Rohault's *Traité de Physique*", *The Thomist* 24: 353–63.

Kieft, Xavier (2009), "Ménagement d'Aristote et fidélité à Descartes: de la *Physique nouvelle* au *Traité de physique*", in Jacques Rohault, *Physique nouvelle (1667)*. Paris: Séha, and Milan: Archè, xxxvii–lxxii.

McClaughlin, Trevor (1976), "Quelques mots sur Rohault et Molière", *Europe* 54: 178–83.

McClaughlin, Trevor (1979), "Censorship and Defenders of the Cartesian Faith in Mid-Seventeenth Century France", *Journal of the History of Ideas* 40: 563–81.

McClaughlin, Trevor (1980), "Claude Clerselier's Attestation of Descartes's Religious Orthodoxy", *Journal of Religious Studies* 20: 136–46.

McClaughlin, Trevor (1996), "Was There an Empirical Movement in Mid-Seventeenth Century France? Experiments in Jacques Rohault's *Traité de physique*", *Revue d'histoire des sciences* 49: 459–81.

McClaughlin, Trevor (2000), "Descartes, Experiments, and a First Generation Cartesian, Jacques Rohault", in Stephen Gaukroger, John Schuster, and John Sutton (eds.), *Descartes' Natural Philosophy*. London: Routledge, 330–46.

Mahoney, Michael S. (1997), "The Mathematical Realm of Nature", in Daniel Garber and Michael Ayers (eds.), *Cambridge History of Seventeenth-Century Philosophy*. Cambridge: Cambridge University Press, 702–59.

Matton, Sylvain (2009), "Remarques sur le manuscrit de la *Physique nouvelle*", in Jacques Rohault, *Physique nouvelle (1667)*. Paris: Séha, and Milan: Archè, lxxiii–xc.

(p. 401) Mazauric, Simone (2014), "Préface", in Jacques Rohault, *Traité de physique*. Paris: Comite des travaux historiques et scientifiques, vii–xxxvi.

Milhaud, Gérard (1972), "Rohault et Molière", *Europe* 50: 37–49.

Mouy, Paul (1934), *Le Développement de la physique cartésienne: 1646–1712*. Paris: Vrin.

Otegem, Matthijs Van (2002), *A Bibliography of the Works of Descartes (1637–1704)*. Utrecht: Zeno, Leiden-Utrecht Research Institute of Philosophy.

Rohault, Jacques (1660–1), *Ms 2225 Conférences sur la physique, faites en 1660–1661, par Jacques Rohault, et recueillies par un de ses auditeurs qui, dit-il, y a ajouté du sien*. Paris: Bibliothèque Sainte-Geneviève.

Rohault, Jacques (1671), *Traité de physique*. Paris: Denys Thierry and Charles Savreux.

Rohault, Jacques (1682), *Oeuvres posthumes de M.Rohault*, ed. Claude Clerselier. Paris: Guillaume Desprez.

Rohault, Jacques (1987), *System of Natural Philosophy, Illustrated with Dr. Samuel Clarke's Notes, Taken Mostly Out of Sir Isaac Newton's Philosophy*, 2 vols. New York and London: Garland Publishing.

Rohault, Jacques (2009), *Physique nouvelle (1667)*. Paris: Séha, and Milan: Archè.

Rohault, Jacques (2014), *Traité de physique*. Paris: Comite des travaux historiques et scientifiques.

Roux, Sophie (2013a), "Was There a Cartesian Experimentalism in 1660s France?", in Mihnea Dobre and Tammy Nyden (eds.), *Cartesian Empiricisms*. Dordrecht: Springer, 47–88.

Roux, Sophie (2013b), "Quelles machines pour quels animaux? Jacques Rohault, Claude Perrault, Giovanni Alfonso Borelli", in A. Gaillard, et al. (eds.), *L'automate: modèle, métaphore, machine, merveille; actes du colloque international de Grenoble (19–21 mars 2009)*. Bordeaux: Presses Universitaires de Bordeaux, 69–113.

Sarton, George (1948), "Second Preface to Volume 38: The Study of Early Scientific Textbooks", *Isis* 38: 137–48.

Schmaltz, Tad (2002), *Radical Cartesianism: The French Reception of Descartes*. Cambridge: Cambridge University Press.

Schmaltz, Tad (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. Oxford: Oxford University Press.

Schüller, Volkmar (2001), "Samuel Clarke's Annotations in Jacques Rohault's *Traité de Physique*, and How They Contributed to Popularising Newton's Physics", in Wolfgang Lefèvre (ed.), *Between Leibniz, Newton, and Kant: Philosophy and Science in the 18th Century*. Dordrecht: Springer, 95–110.

Schuster, John (2012), *Descartes-Agonistes: Physico-mathematics, Method and Corpuscular-Mechanism 1618–33*. Dordrecht: Springer.

Valleriani, Matteo (2017), *The Structures of Practical Knowledge*. Dordrecht: Springer.

Vanpaemel, Geert (1984), “Rohault’s *Traité de Physique* and the Teaching of the Cartesian Physics”, *Janus: Revue Internationale de l’Histoire des Sciences, de la Médecine et de la Technique* 71: 31–40.

Notes:

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(1) This is Rohault’s *Traité de physique*, published in 1671 and quickly translated into Latin (1674). In 1697, Samuel Clarke published a new Latin translation of the treatise, to which he added several comments. The curious case is represented by the subsequent editions published by Clarke (in 1702, 1710, 1718, and an English version in 1723), as his annotations changed sometimes in a significant manner. Several scholars have noted the increased Newtonian tone of Clarke’s comments; see for example Sarton 1948; Hoskin 1961; Schüller 2001.

(2) See for example Bouillier 1868; Balz 1930; Mouy 1934; Clair 1978; McClaughlin 1979, 1980, 1996, 2000; Des Chene 2002.

(3) See Rohault 2009 and especially Sylvain Matton’s preliminary study, which details the history of the manuscript (Matton 2009). One should note that there is no evidence to claim that Rohault authorized this text.

(4) See Rohault 2014. This is a facsimile reproduction of the 1671 original print.

(5) I would highlight here Roux 2013a; Ariew 2014; Dobre 2013, 2017; Schmaltz 2017.

(6) In addition to the references above, there are important discussions in Clarke 1989; McClaughlin 1996.

(7) The classic source for Rohault’s biography is Clair 1978. However, more recently, Volkmar Schüller complained that “in spite of his historical merits, Rohault has fallen into oblivion (except for specialists in seventeenth-century French Cartesianism), and *no reliable bibliography is available*, let alone a complete edition of his works” (Schüller 2001: 96; emphasis added). For a more up-to-date version of some aspects of Rohault’s life, especially the composition of his treatise and its relation to his Parisian conferences, see Dobre 2013 and Mazauric 2014.

(8) There was quite a controversy regarding Rohault’s year of birth, which was ascribed to different dates between 1617 and 1623. See for example Milhaud 1972; McClaughlin 1976. In my discussion, I follow Clair 1978: 17–18.

([9]) An overview of these matters is given in Clair 1978: 31–6. For the relation between Rohault and Molière, see Milhaud 1972; McClaughlin 1976. For the connection between Rohault and Cyrano, see the excellent critical account of the available sources in Alcover 1990, especially pp. 132–67.

([10]) See Descartes 1664.

([11]) See the preface to the final treatise (*Discours de la Fiévre*, 3–4; unpaginated, yet the pagination of the *Discours* starts at 5, so the previous pages must have been numbered too), at the end of Descartes's *Le monde* (Descartes 1664). This edition is attributed to Pierre d'Alibert. However, the preface for the entire volume is signed by a certain "D.R."; see Otegem 2002: ch. 10.

([12]) See the preface to the final treatise (*Discours de la Fiévre*) in Descartes 1664: 4 (unpaginated): "je tâcheray pour vostre satisfaction d'obtenir de l'Auteur du dernier Discours [Rohault], quelques Traitez de plus grande consequence, qu'on m'a assuré qu'il à en estat d'estre mis sous la Presse".

([13]) See Matton's comments regarding the possible date of composition of the *Physique nouvelle (1667)* (Matton 2009: lxxvii–lxxviii). Matton follows a suggestion in Clair 1978: 62. The same claim, that "the *Traité de physique* was, however, essentially complete in 1663" is in Des Chene 2002: 185.

([14]) For details about Rohault's family connections, see Clair 1978: 26–31 and McClaughlin 2000. The latter is especially important for discussing Rohault's connections with Parisian artisanal circles.

([15]) See Clair 1978: 42–56; McClaughlin 1996; Roux 2013a.

([16]) In 1682, Clerselier published Rohault's posthumous works, which included several writings on mathematics and mechanics. See Rohault 1682.

([17]) By the earlier manuscripts, I refer here to the unauthorized text of his conferences, which circulated in various forms in the decade prior to the publication of the *Traité*. The two sources available are Rohault 1660–1 and Rohault 2009.

([18]) To give just a brief example: one of the most debated topics related to Cartesian philosophy concerns the theory of matter. While the list of the main properties of matter does not seem to change much from the early manuscript to the published *Traité*, there is a significant omission in the early text. For example, the earliest text presents "l'impenetrabilité, la figure, l'éstendüe" (Rohault 1660–1: f8v); the *Physique nouvelle (1667)* lists "de l'estenduë, de la divisibilité, de la figure, et l'impenetrabilité" (Rohault 2009: 19); and in part I, chapter 7, article 7 of the published *Traité*, one finds "l'estenduë, de la divisibilité, la figure, & l'impenetrabilité" (Rohault 1671, 2014: 37); the English version of 1723 renders it "Extension, Divisibility, Figure, and Impenetrability" (Rohault 1987: 24). Would this later inclusion of divisibility in Rohault's list reflect a new understanding of the theory of matter emerging in the 1660s or is this a copyist mistake in the

early manuscript? Similar worries are expressed by Matton; see for example Matton 2009: lxxiv. See also Xavier Kieft's comparison between the *Physique nouvelle (1667)* and the *Traité*, in Kieft 2009.

([19]) See Dobre 2013.

([20]) Due to space limitations, I cannot summarize here the content of the preface. For more details about this important text, see Mazauric 2014: xx–xxviii; Dobre 2017: 326–32.

([21]) See the unpaginated preface in Rohault 1987.

([22]) This is especially the case with Clair 1978. McClaughlin had argued that Rohault was forced to move into the alien "ground" of the philosophy of the Schools (McClaughlin 1979). Other studies have taken a more nuanced approach; see for example Mazauric 2014.

([23]) In this sense, see the references to Rohault (variant spelling of the name) in Christiaan Huygens's correspondence from the early 1660s, in Florin Périer's preface to Pascal's *Traitez de l'équilibre des liqueurs, et de la pesanteur de la masse de l'air* (1663), and in a brief account of the history of pneumatic experiments in France, which was published by the *Journal de Sçavans* in 1666. See the discussion of these sources in Mouy 1934; Clair 1978; Dobre 2013.

([24]) See Dobre 2013, especially for the exemplification of Rohault's method in the case of experiments concerning void. Note that a different reading of Rohault's experimental approach, especially of his pneumatic experiments, can be found in Roux 2013a and Schmaltz 2017.

([25]) Interestingly, a similar reconstruction of Descartes's method in the early writings is provided by Garber, although a different reading of Rohault's method is given; see Garber 1996, especially p. 348, for the so-called hypothetical argument, and p. 350 for the way in which hypothetical arguments can work jointly with experiments in the explanation of observed phenomena. Another reading of Descartes's early scientific method in terms of using mathematical reasoning to account for particular mechanical structures, which are conceived independently of a grounding metaphysics, is in Hattab 2009: 120–53. What is important to highlight here is the variants—both in Descartes and in the writings of his followers—of the Cartesian method for knowledge of particulars.

([26]) The following passage is a summary of the argument developed in Dobre 2013.

([27]) See especially the discussion of pneumatic experiments in Roux 2013a; Schmaltz 2017.

([28]) For Descartes's "metaphysical physics", see Garber 1992. In brief, I argue that even if there are traces of Cartesian metaphysics in Rohault, his commitment to Descartes's metaphysics is minimal and even those traces are not fully integrated in his physics. For more details about the relation between metaphysics and physics in Rohault, see Dobre

2017: 322–75. The consequence derived from here is that only the mechanical structure underlying Rohault's account of corpuscles in motion can be adjusted in a new explanation.

([29]) For a general critique of this issue in Rohault, see especially Roux 2013a.

([30]) There are various and numerous studies on this topic. For an account of the practical mathematics, mixed-mathematics or physico-mathematical tradition, with an emphasis on changes taking place in the early modern period, see for example Bennett 1991; Dear 1995; Mahoney 1997; Hattab 2011; Schuster 2012; Domski 2013; Cormack 2017; Valleriani 2017.

([31]) See Rohault 1671, 2014 (unpaginated): "qu'il auroit compose plusieurs Traitez qu'il desireroit faire imprimer & donner au public s'il en avoit nos Lettres sur ce necessaires; entr'autres *un Traité de Physique, ou de la Science naturelle, & celuy de Cosmographie, veus par le Sieur de Meserat nostre Conseiller & Historiographe; Les quinze Livres des Elements de Geometrie d'Euclide, L'Arithmetique Pratique; la Resolution des Triangles Rectilignes, & Spheriques; la Geometrie Pratique; les Fortifications, les Méchaniques, & la Perspective*". The "privilege du Roy" is issued on January 17, 1671. Remarkably, the same text is used by Clerselier for the publication of the *Oeuvres posthumes* in 1682; see Rohault 1682.

([32]) Rohault 1682 (unpaginated): "ce Livre, ou plûtost ce Recueil de plusieurs divers petits Traittez de Mathematique".

([33]) See Rohault 1682 (unpaginated): "il a fallu déguiser un peu le titre; & au lieu de nommer chaque Traitté par son nom, on a esté oblige de les comprendre tous ensemble sous ce titre general & specieux, d'*Oeuvres posthumes* de Monsieur Rohault".

([34]) Rohault 1682 (unpaginated).

([35]) See the unpaginated preface in Rohault 1682: "Ce Livre n'est autre chose qu'un Recueil de plusieurs different Traitez de Mathematique, que Monsieur Rohault avoit coûtume d'enseigner à ceux qui luy fesoient l'honneur de vouloir bien l'avoir pour Maistre". Rohault's activity as a private teacher is discussed in the literature; see for example Clair 1978.

([36]) The episode is discussed in greater detail in Armogathe 1977; McClaughlin 1979; Schmaltz 2002.

([37]) Besides the sources mentioned above, see also Clerselier's defense of Rohault in Rohault 1682.

([38]) See the Lettre de Mons. Rohault à Mons. Guyard, in Clair 1978: 170–8.

([39]) "Je n'ay point d'autres principes que les siens; je reconnois avec luy la Privation, la Matiere, et la Forme; je conviens des notions generales qu'il nous donne de la substance et de l'accident; je/n'entends autre chose que ce qu'il entend par les mots d'Essence et de

Qualité; je rejette le vuide aussi bien que luy; et bien loin d'admettre les Atomes, ou insecables d'Epicure, je démontre que la Matiere est divisible à l'infiny" (Clair 1978: 112). It is not the purpose of this chapter to compare this with Descartes, yet one should observe Rohault's use of "infinity", whereas Descartes would have said "indefinite".

([40]) "Les qualites sensibles … ne consiste que dans les diverses grosseurs, les diverses figures, et les differens mouvemens des petites parties dont ces corps sont composez; Mais remarquez que/je ne dit pas que les qualitez sensibles des corps, consistent dans les parties de ces mesmes corps, lesquelles sont des substances; mais dans la grosseur, la figure, et le mouvement de ces parties, qui ne sont que des accidens, ou des modes" (Clair 1978: 126). On the success of Rohault's account of the sensible qualities in seventeenth-century Louvain, see Vanpaemel 1984.

([41]) A similar terminology of modes and accidents is incorporated in *La Logique ou L'Art de Penser*; see Des Chene 1996: 131–4; Dobre 2017: 217–18.

([42]) See Armogathe 1977; Schmaltz 2002; Ariew 2011.

([43]) The original fragments are "il y a quelques Philosophes qui croyent que les bestes n'agissent pas par connoissance, que ce ne sont que de pures machines" (Clair 1978: 138), and "que cette opinion ne me regarde point, j'en ay toujours laisse disputer les autres, et ne me suis jamais determine là-dessus" (Clair 1978: 139).

([44]) For a general account of the animal-machine in Cartesian philosophy, see Des Chene 2000. For a comparison between Rohault and other Cartesians of the period, see Roux 2013b.

([45]) For the expression "radical experimentalism", see Roux 2013a.

Mihnea Dobre

University of Bucharest

Robert Desgabets and the Supplement to Descartes’s Philosophy

Tad M. Schmaltz

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Abstract and Keywords

This chapter is devoted to the distinctive form of Cartesianism in the work of the French Benedictine Robert Desgabets (1610–78). After a consideration of Desgabets’s defense of Descartes in controversies over the Eucharist that led to the first French condemnations of Cartesianism, there is a discussion of three “radical” doctrines in Desgabets. The first, the “creation doctrine”, involves an original development of Descartes’s doctrine of the creation of eternal truths; the second, “intentionality doctrine”, is taken by Desgabets to reveal the deficiencies of Descartes’s methodical doubt; and the third, the “union doctrine”, is directed against the claim in Descartes that we have purely intellectual thought. Finally, there is a brief evaluation of the claim in the literature that Desgabets’s system constitutes a kind of “Cartesian empiricism”.

Keywords: Descartes, Robert Desgabets, empiricism, eternal truths, methodical doubt, pure intellect

(p. 402) ROBERT Desgabets is now familiar only to devoted scholars of early modern philosophy. However, his French contemporary and fellow Cartesian Pierre-Sylvan Régis called him “one of the greatest metaphysicians of our age” (Régis 1996: 639). In fact, Desgabets did offer a strikingly original version of Cartesian metaphysics and epistemology, which he included as a “supplement” to Descartes’s own views. Aspects of this version are broached in the two book-length texts from Desgabets published during his lifetime (Desgabets 1671 and 1675), but they receive their most complete development in manuscripts published only relatively recently, in an edition of his philosophical writings sponsored by *Studia cartesiana* (in Desgabets 1983–5).[1] Though these writings reveal that he was an unorthodox Cartesian in certain respects, Desgabets nonetheless was also an enthusiastic defender of Descartes during the second half of the seventeenth century, at a time when Cartesianism was under attack in France. A consideration of the case of Desgabets will serve to illustrate that during the early modern period, fidelity to Descartes hardly entailed fidelity to what we currently consider to be central features of his system.[2]

After offering an introduction to Desgabets's life and works (§1), I consider in this chapter his involvement in controversies concerning the religious doctrine of the Eucharist, which marked him out as a prominent—if somewhat ill-fated—Cartesian (§2). In subsequent sections I focus on three "radical"[3] doctrines in Desgabets's writings. The first, (p. 403) the *Creation Doctrine* (§3), is his claim that Descartes's doctrine of the creation of eternal truths requires the thesis—not to be found in Descartes—of the "indefectibility" of created substances. The second, the *Intentionality Doctrine* (§4), consists in an account of the intentionality of ideas that Desgabets takes to reveal the deficiencies of Descartes's own methodical doubt. The third, the *Union Doctrine* (§5), includes the argument that both Descartes's argument for the *cogito* and his claim that we possess a "pure intellect" conflict with the fact that all human thought derives from a union with bodily motion.[4] I conclude with a brief consideration (in §6) of the claim in the specialist literature that Desgabets's system constitutes a kind of "Cartesian empiricism".

1. Life and Works

Desgabets was born in 1610 to Jean des Gabets and Barbe Richard. His birthplace was Ancemont in Verdun, a region annexed by France in 1552, and he died March 1678 at his home abbey of Breuil, near the Lorraine territory of Commercy.

Desgabets entered the Benedictine order in 1636 and taught philosophy and theology for over a decade at Saint-Evre in Toul. In 1648 he was named the Benedictine procurer general in Paris, and the following year he took up the position of professor of philosophy at Saint-Arnold in Metz. From 1653 to 1657 he served in administrative posts in various Lorraine abbeys.

In 1658, Desgabets spent a brief time in Paris on official business, and while there he participated in public discussions of Cartesian natural philosophy. He also offered for consideration at a meeting of the Paris conferences of Habert de Montmort a brief *Discours* on a mechanism for the transfusion of blood. The French physician Jean Denis included this in his 1668 *Lettre à Sorbière*, in part to draw the attention of the English Royal Society to French research in this area (Desgabets 1668).[5]

Upon his return to the Lorraine provinces in 1659, Desgabets worked to spread the teaching of Cartesianism in local Benedictine abbeys. In the mid-1660s, he also became involved in the controversies in France over the emphasis in the posthumously published *Augustinus* of the Catholic theologian Cornelius Jansenius on the subordination of human freedom to the working of divine grace. "Jansenist" views were opposed in Paris and Rome because they were seen as a threat to an established Jesuit account of free will. In France, this opposition is reflected in the harassment of those associated (p. 404) with the convent of Port-Royal, which was widely viewed as a bastion of Jansenism. During this time Desgabets took the politically risky step of siding with the Jansenists and Port-Royal against the religious and political establishments.[6]

Even so, Desgabets later split with the Port-Royalists on the issue of the Eucharist. One occasion for the rupture was the publication in 1671 of his *Considerations of the present state of the controversies* (*Considérations sur l'etat présent des controverses*), which did not include his name but was quickly attributed to him. Under pressure from the French government, Desgabets was censured by his own order for his writings on the Eucharist (for details, see §2).

Despite the 1672 censure, Desgabets subsequently became under-prior and then prior of the provincial abbey of Breuil. Moreover, the censure did not bring about the end of his philosophical activity. In 1674, Desgabets engaged in correspondence with Malebranche after the latter sent him a copy of the first volume of his *Search After Truth* (*Recherch de la vérité*). When Simon Foucher wrote a *Critique of the Search* (*Critique de la Recherche*) that cast doubt on claims in Malebranche's text that mind and body are distinct substances and that ideas represent external objects, Desgabets composed a Cartesian refutation of Foucher's skeptical position. Desgabets's *Critique of the Critique* (*Critique de la Critique*) appeared in 1675, and like his 1671 *Considerations*, it was published anonymously. Also like the *Considerations*, the *Critique* was something of a failure. Malebranche attempted to distance himself from Desgabets's defense of him when he wrote, "I believe that I must say that although I am very satisfied with his person, I am not extremely content with his book" (Malebranche 1958–84: II.500). There are indeed some fundamental misrepresentations of Malebranche's position in Desgabets's defense. Most notably, Desgabets took himself to be defending Malebranche in supporting Descartes's doctrine of the creation of eternal truths, even though such a doctrine is fundamentally at odds with Malebranche's own doctrine of the "vision in God", which requires that we know material objects by means of God's own uncreated ideas.[7]

Undeterred by Malebranche's rebuke, Desgabets further developed the fundamental tenets of the version of Cartesianism in his *Critique*, including his defense there of the Cartesian doctrine of the creation of eternal truths, in a manuscript commentary on the *Meditations*, the 1675 "Supplement to the philosophy of Descartes" (*Supplément à la philosophie de Descartes*). In the preface to his "Supplement", Desgabets distinguishes between two different ways of supplementing Descartes's philosophy. The "second supplement" is one that extends this philosophy "to things equally beautiful and useful" (p. 405) that Descartes himself did not explicitly consider. This sort of supplement is said to be present in the work of "MM. de Cordemoy, Rohault, de la Forge, Clauberg, and others". In contrast, Desgabets takes himself to be offering a "first supplement" to the philosophy of Descartes, one that attempts "to rectify his own thoughts in things where it seems to me that he has left the correct path that leads to the truth" (Desgabets 1983–5: V.156). Though there is a departure here from the letter of Descartes's views, Desgabets insists that his first supplement is in accord with the spirit of Descartes's philosophy insofar as "it is M. Descartes who corrects his own faults" (VI.249).

Toward the end of Desgabets's life, in 1677, there was a series of conferences concerning his distinctive version of Cartesianism that took place at the chateau of the Cardinal de Retz (Jean-François-Paul de Gondi) in Commercy. Manuscripts pertaining to these confer-

ences lay concealed until the early 1840s, when Victor Cousin and Amédée Hennequin independently discovered and published them (see Cousin 1842 and Hennequin 1842).[8] The conferences inspired a session in Paris on Desgabets's views in August or September 1677, at which Malebranche responded to Desgabets on behalf of the other Cartesians.[9] Issues considered at Commercy also found their way into philosophical discussions in the salons of the marquise de Sévigné and of her daughter, the comtesse de Grignan.

In his commentary on the record of the Commercy conferences, Cousin notes that "if dom Robert, in metaphysics, is a disciple of Descartes revolting against all the principles of his master, he is not so in physics. There he is a faithful Cartesian" (quoted in Retz 1887: 345). The fidelity to Descartes in physics is indicated in a 1666 letter to Descartes's literary executor, Claude Clerselier, in which Desgabets criticizes as schismatic the attempt of the French Cartesian Géraud de Cordemoy to introduce a version of Cartesian physics that posits indivisible atoms and the void.[10] Desgabets also argues against the atomist admission of vacua by appealing to Descartes's claim in the *Principles of Philosophy* that matter by its nature occupies all imaginable space. As the quote from Cousin indicates, however, Desgabets combines these conventional features of Cartesian physics with certain metaphysical theses that "revolt against all the principles of his master".

2. Eucharistic Controversies

Desgabets was known to Clerselier prior to their exchange over Cordemoy. During the 1650s, Clerselier attempted to draw Desgabets into a defense of Descartes by sending him copies of Descartes's discussion in unpublished correspondence with the (p. 406) Jesuit Denis Mesland of the Catholic doctrine that the Eucharist involves the "transubstantiation" of bread and wine into Christ's body and blood.[11] Clerselier relied on Desgabets in particular to defend Descartes's account of the Eucharist in this correspondence against the objections of a certain Pastel, a physician from Auvergne, and later against the objections of the Cartesian Oratorian Nicolas Poisson. In both cases Desgabets undertook a vigorous defense of Descartes, insisting on the suggestion in the correspondence with Mesland that transubstantiation occurs by means of the union of Christ's soul with the matter of the Eucharistic elements. He further responded to a common (though not undisputed) position among Catholic theologians that transubstantiation requires the annihilation of the Eucharistic elements by appealing to the result in his 1654 manuscript, "Treatise on the indefectibility of creatures" (*Traité de l'indéfectibilité des creatures*), that material substance has an existence that is "indefectible", that is, indestructible and immutable.

Subsequent to his exchanges with Clerselier, Desgabets continued to develop Descartes's account of the Eucharist in various writings.[12] In 1670 he passed along his work to his fellow Cartesian, Antoine Arnauld, for evaluation, prompting Arnauld's judgment that the account offered in this work contains "an opinion that one must acknowledge to be contrary to all that has been taught in the Church for 600 years", one which would give Calvinists "only the greatest advantage against the Church" in defending their departure

from "one of the principal points of doctrine, which is transubstantiation" (Arnauld 1964–7: I.670–1). When called upon by his superiors to defend himself against Arnauld's judgment, Desgabets composed a short tract—later to become the *Considerations*—in which he cites in support of his position remarks in the *Logic or Art of Thinking* (*Logique ou l'art de penser*, 1662) of Arnauld and his collaborator at Port-Royal, Pierre Nicole, thereby attempting to enlist the support of Port-Royal for his account of the Eucharist.

Desgabets's enthusiasm for Descartes's view of the Eucharist in the correspondence with Mesland was such that just prior to the publication of the *Considerations*, he lobbied for Clerselier to publish the relevant letters. After the publication of this text, he also continued to lobby for Port-Royal acceptance of his development of Descartes's views on the Eucharist. He failed miserably in both campaigns. Clerselier never did publish the correspondence, and as Desgabets himself indicated in a September 1671 letter, the "Messieurs de Port-Royal" were among the principal opponents of the *Considerations*.[13]

The publication of the *Considerations* also very likely was one of the triggers of the first official campaign against Cartesianism in France. The opening salvo in this campaign was a royal decree to the University of Paris, issued in August 1671 by the Archbishop Harlay de Champvallon, that condemns certain opinions that "are now (p. 407) being disseminated not only in the University, but also in the rest of this city and in certain parts of the kingdom, either by strangers, or also by people within" (cited in Schmaltz 2002b: 29). Around the same time as this decree, the royal confessor, Jean Ferrier, reported to the king that he found the recently published *Considerations* to be "a heretical and very pernicious book", and the latter in turn asked Harlay "to examine and censor it".[14] It is noteworthy that Desgabets's tract was said to be "circulating in Paris" and that Desgabets was suspected not only of writing this work but also of "sending it to several people".[15] It is tempting to appeal to the encounter of Louis XIV with the *Considerations* to explain the timing of his decree against pernicious views "being disseminated not only in the University, but also in the rest of this city and in certain parts of the kingdom".

Even if Desgabets's text was not an immediate cause of that decree, however, it certainly was closely associated with the royal action against the teaching of Cartesianism, the unmentioned but widely recognized villain of the decree. Soon after Louis's decree there was a concerted effort to discover the author of the text. Already by the beginning of September 1671, Desgabets was identified.[16] In a meeting with Clerselier at the end of the year, Harlay insinuated that the *Considerations* was primarily responsible for the royal crackdown on the teaching of Cartesian philosophy. Pressure from above led Desgabets's Benedictine superiors to interrogate him the following year and to prohibit him from speaking on the issue of the Eucharist. Even though Desgabets submitted to this judgment,[17] he nonetheless continued to defend the account of the Eucharist that he offered in the *Considerations*, both in personal correspondence and in unpublished writings.[18] Yet the effects of his condemnation were felt even into the mid-eighteenth century, when the Benedictine authorities refused the request of an admirer of Desgabets, dom Catelinot, to publish an official edition of his writings.

3. The Creation Doctrine

I have mentioned Desgabets's insistence that not even God can annihilate the matter of the Eucharistic elements since it is "indefectible". In his "Treatise on indefectibility", he linked this claim of indefectibility to Descartes's doctrine of the creation of eternal (p. 408) truths, noting that just as "M. Descartes was correct in what he has said of the immutable nature of [the eternal] truths, notwithstanding their dependence on God", so one can affirm the indefectibility or indestructibility of matter while claiming at the same time that God has created matter "with a sovereign indifference" (Desgabets 1983–5: II. 35). Indeed, there is for Desgabets a particularly direct connection between what he calls Descartes's *belle doctrine* of God's free creation of eternal truths (VI.232) and his own thesis of indefectibility.[19] Desgabets holds that the immutable essence that grounds eternal truths concerning the material world just is material substance itself. Thus, in creating material substance with sovereign indifference, God thereby created in the same way the eternal truths concerning matter or extension.

Though the title of Desgabets's "Treatise" insinuates the indefectibility of "creatures", it is clear from the work itself that the doctrine is restricted to created *substances*. In particular, there is a distinction in this text between "successive and temporal beings", which have a temporal existence, and "substantial and permanent beings", which have an existence that "has no relation to time" (Desgabets 1983–5: II.34–5). Whereas modal beings can lose their successive existence, once they exist substantial beings can never lack their atemporal existence. The notion that created substantial beings have an atemporal existence certainly cannot be found in Descartes, who argued in Meditation III that created substances require some power that "as it were creates" them anew since they have a temporal duration that is divisible into independent parts (AT VII.49/CSM II.33).[20]

The sort of indefectible existence that Desgabets posits in created substances is particularly strong; he notes that this existence is such that created substances "can in no way be annihilated, not even as one ordinarily says by the omnipotence of God" (Desgabets 1983–5: II.21). But then it might be thought that the view that substances are indefectible in this way is simply not available to someone who, like Desgabets, emphasizes the complete dependence of created substances and eternal truths on God. Desgabets in fact confronted just such an objection at the conferences at Commercy. In the course of one session, the Cardinal de Retz, who hosted the conferences, protested on behalf of the other assembled Cartesians that the position that Desgabets claimed to borrow from (p. 409) Descartes, namely, that "*the will of the Creator is the nature of each thing*, that is to say that each thing is what God willed it to be", undercuts his own conclusion that not even by his absolute power can God annihilate a substance that is by its nature indefectible (Retz 1887: 329).

Though the surviving record of the Commercy conferences includes no direct response from Desgabets to this objection, a rejoinder is indicated in the summary of propositions from his "Treatise" that was an object of discussion at the conferences. One of the propositions drawn from that work is that "it implies a contradiction to say that God can annihi-

late, since this would be to make and not to make at the same instant" (Retz 1887: 329). In the case of modal beings, change is possible because since these beings have a temporal duration. It is consistent with the eternity of the divine will that a modal being exist at t_1 and cease to exist at, say, t_9, since God could will at the same instant that the being exist at t_1 but cease to exist at t_9. Since substantial beings are not temporal, however, they must either exist or fail to exist all at once (see Desgabets 1983–5: II.52–8).

This position depends on Desgabets's claim that the only truths subject to God's will are those concerning creaturely essences that go beyond truths accessible by means of his prevolitional consideration of his own essence. The truth that God cannot act and refrain from acting at one and the same eternal instant pertains to his own essence rather than to the essences of creatures, and thus is not subject to his indifferent will. Whereas Descartes suggested at times that even the law of contradiction is subject to God's power,[21] Desgabets's position is perfectly compatible with the claim that God can know prior to any act of creation that this truth holds for his will.[22]

The juxtaposition in Desgabets of a strong voluntarism and a firm commitment to substantial indefectibility is found also in the work of his later follower Régis. In his 1704 *Use of Reason and Faith* (*Usage de la raison et de la foy*), Régis even appeals to Desgabets's argument that the indefectibility of substances is secured by the fact that God cannot create and refrain from creating at the same instant (Régis 1996: 328).[23] But in this text he also insists, with Desgabets, that eternal truths concerning created substances derive from God's free and indifferent will (275–9).[24]

(p. 410) 4. The Intentionality Doctrine

In his "Supplement", Desgabets notes that "there is an extreme difference between the thoughts of M. Descartes and mine" regarding the thesis that it is possible to conceive of something that does not exist. Whereas Descartes "believes that thought is equally thought, whether it has for an object being or nothingness", Desgabets insists that "ideas suppose their object in conformity with [the] principle that it suffices to think of a thing … to have a demonstrative proof of its existence" (Desgabets 1983–5: VI.254). Desgabets holds that a supplement to Descartes's philosophy that appeals to such a principle establishes that "it is impossible to reasonably doubt the existence of corporeal substance", and thereby "happily reverses the whole machine of the first two *Meditations* of M. Descartes" (VI.225).

According to Desgabets's so-called intentionality principle,[25] which he takes to be "the most simple, the best known and the most necessary of all principles", "all simple conception always has outside of the understanding a real and existing object and is such in itself as it is represented by thought" (Desgabets 1983–5: VI.223). In restricting the principle to "simple conception", Desgabets means to limit it to what Descartes called "clear and distinct perception". Thus, the principle does not require that confused sensory perceptions present external object "as it is represented by thought". Indeed, Desgabets himself takes the scholastic claim that sensible qualities exist in bodies to provide a para-

digmatic example of a false judgment that has been corrected by "the great discovery of Descartes" that the nature of matter consists in extension alone (V.164). However, Desgabets's intentionality principle must also be understood in terms of the distinction—connected to his thesis of the indefectibility of created substance—between the existence of modal and substantial beings. The simple conception of modal beings requires not that they actually exist, but only that they are possible given the existence of the substantial being they modify. In contrast, the conception of this substantial being requires its actual existence. In the case where this being does not exist, neither it nor its modes can even be conceived to be possible. Thus does Desgabets reject a "pure possibility" of created substances in general, and of material substance in particular, that is not grounded in actual existence.

In rejecting the mere conceivability of the non-existence of the material world, Desgabets also is rejecting—as he himself indicates—"the whole machine of the first two *Meditations*", which relies on a doubt concerning the existence of this world that leads to the discovery of the more certain existence of the self in the *cogito* argument. For those who take this machinery to be an essential feature of Descartes's system, it will be difficult to classify Desgabets as a Cartesian. However, for Desgabets himself the Intentionality Doctrine is a mere correction of Descartes that leaves in place his more crucial conception of the material world in terms of extension. Moreover, this doctrine serves to (p. 411) reinforce Desgabets's development of Descartes's view of the creation of eternal truths. According to this development, such a view requires for support the thesis of the indefectibility of created substance, which itself has the result that material substance is as necessary and immutable as the mathematical truths grounded in it. But this thesis is confirmed by the intentionality principle, which takes the mere conception of the material world to require the actual existence of the substantial being that serves as its object.[26]

As in the case of the Creation Doctrine, so Régis follows Desgabets's lead in endorsing the Intentionality Doctrine. On the version of the intentionality principle in Régis's *Use of Reason and Faith*, "ideas depend on their objects as their exemplary causes", which has as a consequence that "the objects are always such as the ideas represent them" (Régis 1996: 235–6). As in Desgabets, this sort of principle is to be understood in terms of the distinction between substances and modes. Régis notes that the idea of modes "can represent them as possible, because when they do not exist, modes are contained in the power of substances". Yet it is otherwise with the idea of substances, which "can never represent them as possible, and represents them always as actually existing" (259). Desgabets therefore was not alone in his desire to reform Cartesianism by ruling out from the start Descartes's hyperbolic doubt of the material world.[27]

5. The Union Doctrine

The Creation and Intentionality Doctrines serve to address what Desgabets calls "the first fault of Descartes", namely, that of rendering "doubtful the reality of the things of which one thinks and speaks", and in particular, the reality of the material world (Desgabets

1983–5: V.171). However, Desgabets also emphasizes a "second fault" of Descartes that consists in "his efforts to separate himself from all commerce with the senses" (V.174–5). Desgabets is no doubt thinking here of Descartes's own claim in the Synopsis to his *Meditations* that the greatest benefit of his methodical doubt lies in "providing the easiest route by which the mind may be led away from the senses" (AT VII.12/CSM II.9). According to Desgabets, the fault of supposing that we can detach our thoughts from the senses is to be corrected by "the true doctrine of the union of the soul and body", according to which "all our thoughts are connected [*liées*] to the motions of our body" (V.183).

Desgabets takes the thoroughgoing union of human thought with bodily motion to be revealed principally by the fact that such thoughts have a temporal duration. The argument here stresses that the sort of reflection on our thought that occurs in connection with Descartes's *cogito* has a continuous temporal duration that is not intrinsic to (p. 412) thought as such, but that derives rather from the union of our thought with continuous motion. Desgabets is relying here explicitly on the traditional Aristotelian definition of time as "the measure of motion". He also holds, with other Cartesians, that the only motion is local motion, and further claims, in orthodox Cartesian fashion, that local motion is merely a mode of particular bodies that are in motion. These various premises help to explain his conclusion that the temporality revealed by reflection on the *cogito* could not exist if there were no bodies external to mind. This argument is somewhat reminiscent of Kant's later appeal to the temporality of consciousness in his "refutation" of a "problematic idealism" in Descartes that takes consciousness to reveal with certainty only the existence of the self. Whereas Kant emphasizes that the existence of "outer things" is required for the determination of the temporal succession of inner experience, however, Desgabets holds that the existence of bodies in motion is required for the very presence of the temporal duration of our thoughts.[28]

At the Commercy conferences, Desgabets confronted the objection that in deriving the temporal duration of thought from motion, he is committed to the view that the thoughts are in fact a kind of motion. Thus the "disciples of Descartes" noted that it is a "primary inconvenience" of Desgabets's position that it implies that "the soul knows very clearly by an intuitive notion that it is a body" (Retz 1887: 243). Desgabets attempted to distance himself from this sort of materialism when he asserted in his "Descartes Distilled" (*Descartes à l'alambic*)—which he submitted for discussion at the conferences—that there is a connection that "all thought has to motion, though it is not motion" (Lemaire 1901: 321). He explains further in his "Supplement" that though our soul has "neither time nor duration by identity of nature", still it has these "by union with motion, in which sense one says quite properly that the soul has a body and the body has a soul" (Desgabets 1983–5: V.190). Thus even though our soul does not have a temporal duration simply in virtue of the fact that it is a thinking thing, Desgabets believes it can be subject to such a duration due to the fact that it "has" a particular body, and more specifically, due to the fact that its thoughts are united to the motions of that body.

Desgabets takes a further consequence of his Union Doctrine to be the rejection of any faculty of "pure intellect" that operates independently of the body. Desgabets is opposing here a position that Descartes was concerned to defend. We find such a position, for instance, in Descartes's response to the objection of his critic Pierre Gassendi that he cannot prove that the mind is incorporeal until he produces "some operation that is of a quite different kind than those that the brutes perform, one that takes place outside the brain, or at least independently of the brain" (AT VII.269/CSM II.188). The response is that "the mind can operate independently of the brain; for the brain cannot in any way be employed in pure understanding, but only in imagining or perceiving by the senses" (AT VII. 358/CSM II/248).

More immediately relevant to Desgabets's rejection of pure intellect, however, is the view of Malebranche on this issue. The third book of Malebranche's *Search* is devoted to a consideration of "pure mind" (*esprit pur*), or "the mind examined in itself and without (p. 413) relation to body" (Malebranche 1958–84: I.379). In a 1674 letter to Malebranche, Desgabets protests that the discussion in the *Search* "gives an idea of the soul strongly related to the one we have of an angel". He offers as an alternative the claim that the human soul is "a thinking substance, but thinking in a certain manner, which is that the thoughts are modes naturally required to be united with corporeal motions" (XVIII.84–5).

In his "Supplement", Desgabets devotes a chapter to the consideration of the "common maxim" that "there is nothing in the intellect that was not first in the senses" (*il n'y a rien dans l'entendement qui n'ait été auparavant dans les sens*). He offers his own reading of this maxim that serves as a middle way between two extreme positions. On the one hand, there is the view of the "libertines" that our ideas not only come from the senses but "are in effect material and they are only motions of the very subtle parts of our brain". On the other, there is the view of Descartes that pure intellections "have no dependence on internal or external sense". Though Desgabets agrees with Descartes, against the libertines, that our thoughts cannot be reduced to mere modes of extension, he insists against Descartes that even "in the most abstract speculations, where the soul above all deploys its freedom, it always has commerce with the senses, at least the interior [senses], which are nothing other than imprinted species in the brain" (Desgabets 1983–5: V.180–1).

Desgabets's Union Doctrine left a trace in Régis's system, just as his Creation and Intentionality Doctrines did. Turning one final time to Régis's *Use of Reason and Faith*, we find an endorsement of the maxim that "all that is in the understanding has passed through the senses" (*tout ce qui est dans l'entendement a passé par les sens*) (Régis 1996: 223). Moreover, this text includes an argument against the presence of a pure intellect that is straight from Desgabets: "all faculties suppose succession in their operation, and all succession supposes motion; but the mind, as such, is not subject to motion" (Régis 1996: 225). As in Desgabets, the premise that "all succession supposes motion" finds support in "this famous definition of Aristotle: *time is the measure of motion*" (351). On the view common to Desgabets and Régis, then, the fact that temporal succession presupposes

motion, and that all of our thoughts are successive, reveals that we have no thought that derives from the mind alone, apart from any bodily influence.

6. A Cartesian Empiricist?

I have suggested that Desgabets's Cartesian system is "radical" in the sense that it deviates in some fundamental ways from Descartes's own system, as seen in Desgabets's rejection of the procedure in the *Meditations* of starting with hyperbolic doubt of the material world and then proceeding to a purely intellectual contemplation of the self in the *cogito* argument. However, there is the further question of whether Desgabets's system reflects a kind of "Cartesian empiricism" that contrasts with more familiar forms of Cartesian "rationalism". This system is so characterized, for instance, in the revised edition of Überweg's *Grundriss der Geschichte des Philosophie*, in which Desgabets is (p. 414) placed, along with Régis and Pierre Cally, in "the empiricist stream" (*die empiristische Strömung*) of French Cartesianism (Rodis-Lewis 1993).[29] There is a particular development of this empiricist reading of Desgabets in the work of Thomas Lennon, who has been a pioneer in the study of Desgabets in the Anglophone world.[30] In his *Battle of the Gods and Giants*, Lennon initially suggests that Desgabets (with Régis) offers an empiricist form of Cartesianism that is less inimical to the views of Gassendi and Locke than the sort of Cartesianism that Malebranche defends (Lennon 1993: 210). In later work, Lennon claims that Régis borrowed from Desgabets an argument from the Cartesian doctrine of the creation of eternal truths to the conclusion that we depend on sense experience for all of our knowledge. According to Lennon, this doctrine—at least as Régis, following Desgabets, understands it—requires that "before the fact of creation there can be no rational guarantee of what God creates; this can be determined only after the fact through experience" (Lennon 1998: 355). And since this experience is *sensory* experience, all of our knowledge will depend on the senses, which explains Desgabets's endorsement of the maxim that nothing is in the intellect that was not first in the senses.[31]

An initial response to this reading is that Desgabets in fact rejected the view that our knowledge of eternal truths depends *a posteriori* on sense experience. Indeed, we have seen in Desgabets the claim—surely a match for anything found in the rationalists—that it follows from the mere fact that we can conceive material substance that such a substance exists. Moreover, Desgabets concludes that "the object of the sciences is necessary and immutable" by appealing to the fact that "speculative sciences" consider only substance and the possibility of modes and not "this actual existence that modes and particular things possess at a certain time", the latter of which concerns "experience that comes from the senses more than from reasoning" (Desgabets 1983–5: VI.254).

This is not to deny that there is *any* sense in which Desgabets can be considered as an empiricist. After all, he clearly is committed to the rejection of a form of rationalism that is linked to Malebranche's insistence on the uncreated nature of eternal truths and on the existence of a pure intellect in us that operates independently of the body.[32] Nonetheless, Desgabets neither derived the denial of pure intellect from the denial of (p. 415) *a priori*

knowledge, nor inferred the denial of such knowledge from the doctrine of the creation of eternal truths. The view that Desgabets bequeathed to Régis rather combines an empiricist denial of pure intellect with claims concerning the indefectibility of substance and the necessity of an immutable ground for our ideas that have decidedly rationalist overtones.

References

Armogathe, Jean-Robert (1969), "Dom Desgabets et Port-Royal", *Chroniques de Port-Royal* 17/18: 68–87.

Armogathe, Jean-Robert (1974), "Les théologies eucharistiques de Desgabets", *Revue de synthèse* 74: 19–29.

Armogathe, Jean-Robert (1977), *Theologia cartesiana: l'explication physique de l'Eucharistie chez Descartes et dom Desgabets*. The Hague: M. Nijhoff.

Arnauld, Antoine (1964–7), *Œuvres de Messire Antoine Arnauld Docteur de la maison et société de Sorbonne*, 43 vols in 38. Brussels: Culture et Civilisation.

Ayers, Michael (1998), "Theories of Knowledge and Belief", in D. Garber and M. Ayers (eds.), *The Cambridge History of Seventeenth-Century Philosophy*, vol. 2. Cambridge: Cambridge University Press, 1003–61.

Beaude, Joseph (1979), "Cartésianisme et anticartésianisme de Desgabets"*, Studia cartesiana* 1: 1–35.

Bouillier, Francisque (1868), *Histoire de la philosophie cartésienne*, 2nd edition, 2 vols. Paris: Delagrave.

Cook, Monte (2002), "Desgabets's Representation Principle", *Journal of the History of Philosophy* 40: 189–200.

Cook, Monte (2005), "Desgabets on the Creation of Eternal Truths", *Journal of the History of Philosophy* 43: 21–36.

Cook, Monte (2008), "Desgabets as a Cartesian Empiricist", *Journal of the History of Philosophy* 46: 501–15.

Cousin, Victor (1842), "Procès-verbal de quelques séances d'une société cartésienne qui s'etait formée à Paris dans la seconde moitié du XVIIe siècle", *Journal des savants*, fév.: 97–116; "Le cardinal de Retz cartésien", mars: 129–44; avril: 193–210; mai: 288–315.

Desgabets, Robert (1668), "Extrait d'une lettre de Dom Robert des Gabets et Discours de la communication ou transfusion du sang pronouncé à Paris chez Montmor … en juillet 1658", in Jean-Baptiste Denis, *Lettre escrite à Monsieur Sobière Docteur en Médecin par Jean Denis aussi Docteur en Médecine. Touchant l'origine de la Transfusion du sang, et la manière de la pratiquer sur les hommes*. Paris: J. Cusson, 3–6.

[Desgabets, Robert] (1671), *Considérations sur l'état présent de la controverse touchant le Très Saint-Sacrement de l'autel, où il est traité en peu mots de l'opinion qui enseigne que la matière du pain est changé en celle du corps de Jésus-Christ par son union substantielle à son âme et à sa personne divine*. Hollande: à la Sphere.

[Desgabets, Robert] (1675), *Critique de la critique de la recherche de la verité, ou l'on découvre le chemin qui conduit aux connoissances solides. Pour servir de reponse à la lettre d'un academicien*. Paris: du Puis.

Desgabets, Robert (1983–5), *Dom Robert Desgabets: Œuvres philosophiques inédites*, ed. Joseph Beaude, 7 vols. Amsterdam: Quadratures.

(p. 416) Easton, Patricia (1998), "Desgabets", in Edward Craig (ed.), *Routledge Encyclopedia of Philosophy*. London: Routledge, 205.

Easton, Patricia, and Thomas M. Lennon (1992), *The Cartesian Empiricism of François Bayle*. New York: Garland.

Faye, Emmanuel (2005), "The Cartesianism of Desgabets and Arnauld and the Problem of Eternal Truths", *Oxford Studies in Early Modern Philosophy* 2: 173–209.

Hennequin, Amédée (1842), "Les œuvres philosophiques du cardinal de Retz publiées sur un manuscrit d'Epinal", *La France littéraire*, 1 mai: 93–108; 1 juin: 189–200; 15 juin: 232–49.

Lemaire, Paul (1901), *Le Cartésianisme chez les bénédictines: Dom Robert Desgabets, son système, son influence et son école*. Paris: Felix Alcan.

Lennon, Thomas M. (1993), *The Battle of the Gods and Giants: The Legacies of Descartes and Gassendi, 1655–1715*. Princeton, NJ: Princeton University Press.

Lennon, Thomas M. (1998), "The Cartesian Dialectic of Creation", in D. Garber and M. Ayers (eds.), *The Cambridge History of Seventeenth-Century Philosophy*, vol. 1. Cambridge: Cambridge University Press, 331–62.

Mabillon, Jean, and Thierri Ruinart (1724), *Œuvres posthumes de dom Mabillon and dom Ruinart*, 3 vols. Paris: F. Rabutz et al.

Malebranche, Nicolas (1958–84), *Œuvres complètes de Malebranche*, ed. A. Robinet, 20 vols. Paris: Vrin.

Régis, Pierre-Sylvain (1996), *L'Usage de la raison et de la foy*, ed. Jean-Robert Armogathe. Paris: Fayard.

Retz, Jean-François-Paul de Gondi, cardinal de (1887), "Dissertations sur le cartésianisme, par le cardinal de Retz et le bénédictin dom Robert Des Gabets", in R. de Chantelauze (ed.), *Œuvres de cardinal de Retz*, vol. 9. Paris: Hatchette, 209–360.

Rodis-Lewis, Geneviève (1974), "L'ecrit de Desgabets sur la transfusion du sang et sa place dans les polémiques contemporaines", *Revue de synthèse* 74: 316–64.

Rodis-Lewis, Geneviève (1979), "Quelques échos de la thèse de Desgabets sur l'indéféctibilité des substances", *Studia Cartesiana* 1: 121–8.

Rodis-Lewis, Geneviève (1981), "Les diverses éditions des discussions entre Desgabets et le cardinal de Retz (corrections d'apres un manuscit inédit)", *Studia cartésiana* 2: 155–64.

Rodis-Lewis, Geneviève (1993), "Robert Desgabets", in Jean-Pierre Schobinger (ed.), *Grundriss der Geschichte der Philosophie, begründet von Friedrich Ueberweg, völlig neubearbeitete Ausgabe. Die Philosophie des 17. Jahrhunderts*, 2, *Frankreich und Niederlande*, vol. 2–1. Basil: Schwabe, 423–31.

Schmaltz, Tad M. (1999), "What Has Cartesianism to Do with Jansenism?", *Journal of the History of Ideas* 60: 37–56.

Schmaltz, Tad M. (2002a), "The Cartesian Refutation of Idealism", *British Journal for the History of Philosophy* 10: 1–28.

Schmaltz, Tad M. (2002b), *Radical Cartesianism: The French Reception of Descartes*. Cambridge: Cambridge University Press.

Schmaltz, Tad M. (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. Oxford: Oxford University Press.

Watson, Richard (1966), *The Downfall of Cartesianism, 1673–1712: A Study of Epistemological Issues in Late 17th Century Cartesianism*. The Hague: M. Nijhoff.

Notes:

([1]) Another important source for Desgabets's unpublished work is Lemaire 1901.

([2]) For a treatment of Cartesian and anti-Cartesian aspects of Desgabets's system, see Beaude 1979.

([3]) In Schmaltz 2002b, I call Desgabets's (and Régis's) system "Radical Cartesianism" both in the sense that it deviates "from Descartes's own position in the *Meditations* that in the search for knowledge we must start with a self that is detached from external things", and "in the more etymological sense of getting to the 'root' of Descartes's thought", especially with respect to his doctrine of the creation of eternal truths (17). I have since become skeptical of the claim that there is *the* system of Descartes which it is possible to get to the root of. This skepticism is reflected in the claim from Schmaltz 2017 that "from the perspective of later Dutch and French receptions of Descartes, Cartesianism as a conceptual system seems to be much less a seamless whole than the views of Descartes are sometimes presented" (9).

([4]) My treatment here of the three doctrines draws on the more detailed discussion of them in Schmaltz 2002b: 77–212. For a general discussion of Desgabets and his views, see Rodis-Lewis 1993.

([5]) On Desgabets on transfusion, see Rodis-Lewis 1974.

([6]) On Desgabets's relations to Port-Royal, see Armogathe 1969. On the relation between Jansenism and Cartesianism, see Schmaltz 1999.

([7]) To be fair, Foucher also took Malebranche to support Descartes's doctrine, primarily on the basis of the claim in the first edition of Malebranche's *Search* that "I call *necessary truths* those that are immutable by their nature and because they have been determined by the will of God, which is not subject to change" (Malebranche 1958–84: I.63n.a). Malebranche revised this claim in later editions to say that "I call necessary truths those that are immutable by their nature, and those that have been determined by the will of God, which is not subject to change" (I.63), thus distinguishing truths that do not vary due to their nature from those that do not vary due to the immutability of the divine will.

([8]) See also the discussion of the Commercy conferences in Rodis-Lewis 1981.

([9]) There is a record of this meeting in Malebranche 1958–84: XVIII.122–4.

([10]) This criticism of Cordemoy may seem to be out of line with Desgabets's aforementioned claim in the "Supplement" that Cordemoy offers a second supplement that extends Descartes's philosophy to new phenomena. It may be that in the latter text Desgabets was ignoring Cordemoy's atomism and focusing rather on his views on the physiology of language in the *Discours physique de la parole* (1668), which could well be seen as extending Descartes's principles to phenomena he did not consider.

([11]) See the letters to Mesland of February 9, 1645 (AT IV.165–70/CSMK 242–4) and 1645/1646 (AT 345–8/CSMK 278–9).

([12]) For the details, see Armogathe 1974 and 1977.

([13]) The indication is from a letter to Bossuet of September 5, 1671, the text of which is provided in Lemaire 1901: 379.

([14]) As reported in a letter of September 19, 1671, from the Procurer General of the Benedictines to Desgabets, a portion of which is quoted in Lemaire 1901: 126, n. 2.

([15]) From the 1671 letter cited in note 13.

([16]) As indicated in the 1671 letter to Bossuet (see note 13), quoted in Lemaire 1901: 379.

([17]) As indicated in Lemaire 1901: 127, n. 2.

([18]) One of his discussions of the Eucharist was published some forty years after his death, in Mabillon and Ruinart 1724: I.201–4. There is also Desgabets's 1674 "Réponse

d'un cartésien a la lettre d'un philosophe de ses amis", an unpublished text provided in Lemaire 1901: 347–78.

([19]) Descartes famously announced this doctrine in a letter to Mersenne of April 15, 1630, in which he declared that "the mathematical truths that you call eternal have been laid down by God and depend on him entirely no less than the rest of his creatures" (AT I.145/ CSMK 23).

([20]) Nonetheless, Desgabets attempts to argue at times that other principles in Descartes support the indefectibility thesis; for instance, one of the chapters of his "Treatise on indefectibility" is entitled, "That the principal opinions of the philosophy of Descartes establish the indefectibility of creatures" (Desgabets 1983–5: II.26). Desgabets emphasizes in particular the claim in Descartes that the nature of matter consists in extension. But cf. the claim in Faye 2005 that despite this reference to Descartes, "Desgabets should be seen less as a 'radical Cartesian', whose doctrine has been constituted out of the philosophy of the author of the *Meditations* and the *Principles*, than as a thinker molded by the questions and disputations of late Scholasticism who encountered on his way the works of Descartes when his ideas were already partially formed, and who—at least with respect to metaphysics (for the case of physics is, without question, different)—wanted to assimilate selectively those elements of Descartes's philosophy that seemed to him able to further his own principles" (204).

([21]) See, for instance, Descartes's claim in a 1644 letter to Mesland that God "cannot have been determined to make it true that contradictories cannot be true together, and therefore … he could have done the opposite" (AT IV.118/CSMK 235). This claim may seem particularly problematic insofar as it allows that God could make it true that, for instance, he is not eternal or is a deceiver. These are consequences that Desgabets need not allow.

([22]) There is also the claim in Cook 2005 that Desgabets also differed from Descartes in allowing not for the possibility that God creates other essences and truths, but only from the counterfactual case in which he creates nothing. However, it seems that something stronger is suggested Desgabets's remark in his "Treatise on indefectibility" that "God can act other than he does at the very instant he gives being to his creatures" (Desgabets 1983–5: II.19).

([23]) As I indicate in note 27, however, Régis's views in this late text sometimes differ from views he expresses in his earlier writings.

([24]) For other examples of the influence of Desgabets's thesis of the indefectibility of created substances, see Rodis-Lewis 1979.

([25]) So-called in Schmaltz 2002b; also called "un principe d'intentionalité" in Beaude 1979: 6, and the "representation principle" in Cook 2002.

([26]) But see the alternative view of Desgabets's relation to Descartes indicated in note 20.

([27]) It should be noted, however, that Régis had attempted during the 1690s to defend Descartes’s use of hyperbolic doubt against the objections of the critic of Cartesianism, Pierre-Daniel Huet. My focus here is on Régis’s views in his later *Use of Reason and Faith*, which cannot be assumed to match everything we find in his earlier writings.

([28]) For more on Desgabets’s “Cartesian refutation of idealism”, see Schmaltz 2002a.

([29]) In fact, the view in the French literature of Desgabets as a Cartesian empiricist dates back to the eighteenth century; see Cousin 1842 and Bouillier 1868: I.531–8.

([30]) In the later 1970s and early 1980s, Lennon was a member of the editorial board of *Studia cartesiana* who pushed (successfully) for its sponsorship of the publication of Desgabets 1983–5. Also worth mentioning in this regard is Watson 1966, a classic study that focuses on Foucher but that also includes a consideration of the contributions of Desgabets to early modern debates over Cartesianism.

([31]) For the claim that Desgabets’s acceptance of the doctrine of the creation of eternal truths led him to an empiricist view of knowledge, see also Easton and Lennon 1992: 23–4; Easton 1998; and Ayers 1998: 1029–30.

([32]) Elsewhere I have labeled the view in Desgabets and Régis as “metaphysical empiricism”, appealing to the fact that their shared thesis that all human thought involves a union with bodily motion depends crucially on their metaphysical distinction between temporal modal beings and atemporal substantial beings (Schmaltz 2017: 268–72). Cf. the view in Cook 2008 that Desgabets’s empiricism consists only in the claim that all our ideas are united to bodily motions. Cook is concerned to argue in particular against the claim that Desgabets was a Lockean sort of “concept empiricist”.

Tad M. Schmaltz

Tad Schmaltz is Professor of Philosophy and James B. and Grace J. Nelson Fellow at the University of Michigan, Ann Arbor. His areas of specialization are the history of early modern philosophy, the history and philosophy of early modern science, and the relations among philosophy, science and theology in the early modern period. He has as special interests the variety of early modern "Cartesianisms"; the influence of late scholasticism on early modern thought; the nature of the "Scientific Revolution"; and early modern versions of substance-mode metaphysics, theories of mereology, and views of causation and freedom.

The Early Dutch Reception of Cartesianism

Wiep van Bunge

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Abstract and Keywords

Descartes spent the final two decades of his life in the Dutch Republic, where he turned into a publishing author and where he soon gathered a considerable following, in particular among academics. Of course, his views also met with opposition and were censured both at Leiden and at Utrecht universities. One motive for him joining the court of the Queen Christina of Sweden in 1649 may well have been his bitterness over the early Dutch reception of his views, and exasperation with the quarrels his philosophy had provoked. However, Descartes may well have underestimated the impact his writings had on Dutch scientists and philosophers ready to abandon Peripateticism.

Keywords: Dutch Republic, Holland, Utrecht, Leiden, Reneri, Regius, Voetius, Schoock, Heereboord

(p. 417) 1. Living Among the Dutch

DUTCH Cartesianism was almost contemporaneous with Descartes's philosophy itself. Having moved to the Republic by the end of 1628, for the next two decades Descartes gradually built a formidable network of Dutch friends and admirers willing and able to support and promote his cause. Most notably, during the early 1630s he befriended Constantijn Huygens (1596–1687), secretary to two consecutive stadholders: Prince Frederick Henry (1584–1647) and his son William II of Orange (1626–50), and a highly gifted poet, composer, and diplomat besides, with whom he exchanged over a hundred letters.[1] Inevitably, Descartes's views also met with strong opposition in the United Provinces and various degrees of censorship, which may have helped him to make up his mind when he was invited by Christina, Queen of Sweden (1626–89), to instruct her in the latest developments in philosophy and science. Adrien Baillet (1649–1706), Descartes's first biographer, was struggling already with the question why Descartes was prepared to give up his comfortable, solitary existence at Egmond, a coastal village near Alkmaar, for the rigors of the Scandinavian climate which would indeed turn out to be fatal (Baillet 1691: II.368–73). In April 1649, a few months before his departure, Descartes famously avowed "that a

man who was born in the gardens of Touraine, and who now inhabits a land where, if there is not as much honey as God promised the Israelites, it is credible that there is more milk, cannot so easily resolve to leave it to go to live in a land of bears, among the rocks and ice" (AT V.349/CSMK 375).[2]

(p. 418) Much as his admirers stressed Descartes's indifference towards his own reputation, vanity may well have tipped the scale in his ultimate decision to leave his beloved Egmond. At last a major European court showed genuine interest, and the Queen was widely known for her intellectual pursuits.[3] An additional motive may well have been his bitterness over the early Dutch reception of his views. When Descartes left the Republic in September 1649 in order to join the court of the Queen of Sweden, he was exasperated with the quarrels his philosophy had provoked.[4] Desmond Clarke, one of his more recent biographers, has pointed to a structural deficit in Descartes's response to those whom he failed to convince of his own views: "Descartes had a penchant for misunderstanding those who disagreed with him, attributing motives to their alleged mistakes that were less than complimentary, and then adopting the moralistic posture of someone who had been deeply wronged despite the virtues he claimed always to have exercised when attempting to resolve disagreements."[5]

But, over the past few decades, Theo Verbeek has demonstrated convincingly that by the late 1640s Descartes seriously underestimated the proliferation of his philosophy among leading Dutch scholars and academics.[6] Despite ferocious opposition voiced by some of the leading Reformed theologians of the day, both at Leiden and at Utrecht universities, the contours of Dutch Cartesianism as a genuine school of thought were starting to take shape, and before long other Dutch universities were to follow suit. During the 1650s Dutch Cartesians would even initiate a series of polemics in the vernacular, and in the Netherlands for most of the latter half of the century Cartesian philosophy was to become largely synonymous with "modern" philosophy.[7] So indications are that personal misgivings, including wounded pride, had gotten the better of the Frenchman, who had a hard time coming to terms with the violent nature of seventeenth-century Dutch polemical culture, in which academics and laymen alike seemed to revel in exchanging insults. In addition, Descartes appears never to have learned to appreciate the way in which the Dutch public domain otherwise allowed for considerable freedom of thought. Despite the real and profound impact his stay in the Dutch Republic had on the intellectual history of this new-born nation hosting the man and disseminating his work, he departed very much the foreigner he had arrived as. By the time he embarked for Stockholm, however, he had grown into something of a European celebrity, and it should be added that he does not appear to have considered permanent settlement in Sweden (Baillet 1691: II.388).

(p. 419) Baillet famously referred to Descartes's stay in the Dutch Republic as resembling "the sojourn of the Israelites in wild Arabia" (Baillet 1691: I.173). He first arrived in Middelburg, capital of the province of Zeeland, hoping to meet up with Isaac Beeckman (1588–1637), whom he had encountered in Breda on his first visit to the Republic in November 1618, during the Twelve Years' Truce. But Beeckman, who appears to have had a decisive influence on Descartes's first attempts at creating a mechanical philosophy of his

own making,[8] turned out to have moved to Dordrecht the previous year, upon which Descartes travelled to Amsterdam. In the spring of the following year he settled for a couple of months in Franeker, after which he continued his journey to Leiden, where he made friends with a private lecturer, with whom he moved to Deventer, and next, to Amsterdam, and to Utrecht, Oegstgeest, and so on.[9] Anyone only slightly familiar with the seventeenth-century Dutch infrastructure of higher education will, however, recognize at a glance that especially Descartes's early Dutch addresses were not picked at random. With one or two exceptions, such as Egmond and Santpoort, they were all in the immediate vicinity of one institution of higher education or other. Franeker and Leiden (within walking distance from Oegstgeest) hosted universities, whereas Middelburg, Deventer, and Utrecht hosted "Athenea" or "Illustrious Schools", preparatory schools for the university,[10] which in the case of Utrecht actually turned into a university only two years after its establishment in 1634, when it was allowed to bestow academic doctorates just as Leiden (1575–), Franeker (1585–1811/1843), and Groningen (1619–) universities had been doing for several decades already.

Besides the obvious opportunity simply to discuss his own ideas, to Descartes the presence of an academic community held the additional advantage of acquiring an academic following. There is little in Descartes's correspondence to suggest that he moved to the Dutch Republic with the purpose of establishing a "Cartesian" school of thought. At least initially, he appears to have been mainly concerned to pursue his philosophical interests as he saw fit and to be left alone by the authorities, be they secular or ecclesiastical. It stands to reason that at first he had a number of more specific projects on his mind in mathematics and in philosophy.[11] Upon arrival, however, he must have been struck by the relative receptiveness of his new-found friends to some of his proposals. As Descartes himself put it, for instance, newly established Utrecht University simply hadn't had the time to be corrupted yet (AT II.379/CSMK 124): the creation of a Dutch academic infrastructure was a direct result of the Revolt, which only came to an end of course at the Treaty of Westphalia of 1648. The budding Republic was in dire need of the kind of religious, medical, and legal professionals only a university could produce, and following the inauguration of Leiden University in the province of Holland, by the middle of the century the Northern provinces and Utrecht as well as Gelderland (Harderwijk, 1648–1811) boasted academies of their own.

(p. 420) 2. Philosophy in the Dutch Republic

Initially the status of philosophy in these young universities was rather precarious.[12] The teaching of philosophy was allocated to the propaedeutic courses offered by the Faculty of Arts, and from the start professors of the "superior" Faculty of Theology made sure it did not challenge in any way the Dutch Reformed creed. Despite considerable opposition to "scholastic" philosophy, suspected by several Dutch scholars to be intimately connected to "Popery", at Leiden Franco Burgersdijk (1590–1635) issued a series of textbooks that succeeded in establishing a vigorous Peripatetic tradition which, most notably at Utrecht, would survive until the early eighteenth century. Burgersdijk's "Aristotelianism",

however, was anything but dogmatic. The Leiden professor, for instance, was seriously interested in Copernicanism,[13] and arguably more importantly, his work was essentially geared towards the classroom.[14] Broadly in tandem with academic customs throughout Europe, Dutch philosophy professors were not supposed to carry out research. Instead, they were appointed with the purpose of introducing their students to a conceptual vocabulary that had stood the test of time, preparing them for a career in one of the superior faculties of theology, medicine, or law. In a sense, academic "Aristotelianism" did not represent any particular school of thought.[15]

During the fifteenth and sixteenth centuries, especially in Italy, humanist scholars such as Lorenzo Valla (1406–57) had chastised Aristotelian scholasticism already, and Platonism had enjoyed a genuine renaissance.[16] In sixteenth-century France, Pierre de la Ramée (1515–72) had unleashed a violent campaign against Aristotle's work on logic, commonly referred to as the *Organon*.[17] In Britain, Francis Bacon (1561–1626) had followed suit launching his *Instauratio magna* on the basis of a *Novum organon*.[18] By the early seventeenth century, natural philosophers all over Europe started wondering whether Aristotelianism could still be considered conversant with the latest developments in astronomy in particular. Following the gradual replacement of Aristotle's geocentric picture of the universe by Nicolaus Copernicus's (1473–1543) heliocentric cosmography, the further discovery of celestial nova, growing skepticism regarding Aristotle's theory of causality and his concept of "substantial forms", the authority of his natural philosophy started to crumble. By the middle of the century, Peripateticism was reaching the end of its otherwise remarkable flexibility.[19] Increasingly, natural philosophers turned towards mathematics both as a means to capture natural laws and as a goal or an ideal of real knowledge. Hence, across Europe, a series of efforts got under way to create alternatives to the Aristotelian tradition, which had tended towards separating (p. 421) mathematics from physics. From the 1630s onwards, mechanism was to become the predominant paradigm for natural philosophy.[20]

So by the time Descartes was reaching maturity, numerous scientists and scholars were identified as representing a *philosophia nova*, able perhaps to finally dislodge Aristotle as the spokesman on behalf of philosophy as such. Yet neither Galileo Galilei (1564–1642) nor Thomas Hobbes (1588–1679) nor Pierre Gassendi (1592–1655), to name just three of his most conspicuously brilliant contemporaries, succeeded in destroying the authority of the *philosophia vetus* quite in the way Descartes would, turning him into the proverbial "father of modern philosophy". In the eyes of his admirers, Descartes appears to have deserved this epithet not only because he developed an alternative to both Aristotle's physics and his metaphysics, so that he was able to present a comprehensive, alternative system of thought, including a "Method of Rightly Conducting One's Reason and Seeking the Truth in the Sciences", but most of all as he was the *last* major critic of Peripateticism.[21]

When Descartes settled in the Dutch Republic, however, and started creating an audience appreciating his achievements, he hadn't published anything, and none of his major future publications had been completed in manuscript either. Even worse, the one book he

was working on feverishly from 1628 to 1633, entitled *Le monde*, was only published posthumously since Descartes feared Galileo's indictment of 1633 by the Catholic Church would be extended to his own efforts. Not even his most trusted correspondents, such as Huygens and Marin Mersenne (1588–1648), were able to convince him to publish *Le monde*, which forced him to consider alternative ways to publish at least some of his findings without publicly admitting that his physics, like Galileo's, was heliocentric. Thus, Descartes decided to launch his philosophy with a *Discours de la méthode*, accompanied by his *Dioptrique, Météores*, and *Géométrie*, published at Leiden in 1637. To Descartes's disappointment, some of the finest French mathematicians of the time were underwhelmed, in particular with his *Géométrie* and *Dioptrique*, so from 1637 to 1639 he found himself exchanging increasingly hostile letters with Pierre Fermat (1601–65), Giles Personne de Roberval (1602–75), and Étienne Pascal (1588–1651).[22] In the Netherlands, on the other hand, interest in his work was rapidly growing.

3. Friends and Foes

For much of the time he was working on his debut, he was accompanied by Henricus Reneri (1593–1639), who in 1631 had been appointed to the chair of philosophy of the recently established Deventer Illustrious School, and who three years later would (p. 422) become the first professor of philosophy of the Illustrious School of Utrecht.[23] It was Reneri who distributed the copies of the *Discours*, ensured that Descartes's illegitimate daughter Francine (1635–40) was secretly baptized in Deventer, and according to Baillet it was due to Reneri that Utrecht University was "born Cartesian" (Baillet 1691: II, 2). In view of his inaugural oration and the handful of disputations held under his presidency, this sounds rather far-fetched. Reneri was interested in a wide variety of *novatores*, including, for instance, David Gorlaeus (1591–1612), the brilliant Franeker atomist who died at the age of twenty-one, but whose *Exercitationes Philosophicae* (1620) remained popular among Dutch philosophers for decades.[24] Reneri's approach testifies first and foremost to his eclecticism and his sympathy for Baconianism, which makes it likely that Descartes's critical analysis of Baconian empiricism in the sixth *Discours* is actually a comment on his Utrecht friend's views.[25] But as soon as it was available in print, Reneri appears to have used the *Discours* in his classes, and his funeral in 1639 ended in something of a row as Anthonius Aemilius (1589–1660), professor of history and rhetoric, held a rather curious funeral oration, waxing lyrical mostly about the genius of Reneri's French friend, "the Archimedes of our time".[26]

According to Descartes, the Utrecht theologian Gisbertus Voetius (1589–1676), present at the time, was alarmed by this oration and inspired to initiate a campaign against "atheism".[27] But by the late 1630s another Utrecht professor, appointed in 1638, was about to trigger the fuse: introduced to Descartes by Reneri, Henricus Regius (1598–1679), professor of botany and theoretical medicine, was studying the *Dioptrique* and the *Météores* and well on his way toward formulating a mechanist and materialist system of his own devising.[28] Regius was the son of prominent Utrecht brewers and had been educated in Franeker, Groningen, Leiden, Montpellier, and Padua. In 1640, his salary was raised as he

was invited to deliver additional lectures in natural philosophy, a measure he appears to have interpreted as an invitation to present some of his own insights. Initially, Regius was delighted to be advised by Descartes personally, but soon relations soured when, in 1641, the Utrecht professor started organizing a series of disputations, which on December 8 of that year ended with a major uproar in the Utrecht auditorium.

Within a fortnight Voetius struck back, adding three corollaries to a disputation held under his presidency and scheduled for December 18, to be followed by two further sessions on December 23 and 24, for which he drafted an additional *Appendix*. Regius was furious and, backed by Descartes on February 16, 1643, issued a *Responsio* to Voetius's charges, which was confiscated upon publication.[29] Three issues had turned out to be crucial: first, Regius's thesis that the unity of soul and body in man is not substantial but "accidental". Since mind and body are distinct substances, or so Regius felt, their unity (p. 423) cannot be "per se". According to Voetius, however, Cartesian dualism jeopardized the doctrine of the resurrection of the body. Secondly, Regius's public support of Copernicanism was also highly questionable from a theological perspective, since it plainly contradicted such essential biblical passages as *Joshua* 10:12–14, *Ecclesiastes* 1:4–7, and *Psalms* 19:5–7. Thirdly, Voetius complained about the more general trend among the *novatores* to discard the Aristotelian notion of "substantial forms", which account both for the species to which individual objects belong and for the internal cause of movement of substances. For all intents and purposes, Voetius had won the day as, on March 15, 1642, Regius was prohibited from continuing his lectures on natural philosophy, and on the 17th, the Senate of Utrecht University put an end to the teaching of "new philosophy".[30] Adding insult to injury, Gisbert Voetius was appointed rector magnificus of Utrecht University on March 26, and on April 4 Utrecht city council also officially condemned "the new philosophy".

4. Utrecht

Over the next few years, Descartes would be drawn into a highly vitriolic dispute with Voetius while he also grew ever more dissatisfied with his former friend Regius. First he decided to take on Voetius himself, and he did so in a highly public manner, adding a scathing *Epistola ad P. Dinet* to the second edition of the *Meditationes metaphysicae*, first published in Paris in 1641. This edition appeared in Amsterdam in 1642, and the second half of the appended *Epistola ad Dinet* contained an extremely nasty portrait of Voetius, focusing on the man's quarrelsome nature and political agenda. It would seem Descartes's aggressive attitude towards his Utrecht critics had only been nourished, first by the hostile reception by French mathematicians of the *Discours*, and next by the vexed history of the *Meditationes*: Descartes's decision to add *Objectiones* and his own *Responsiones* to the text had turned out to be a tiresome affair, straining his relations with such peers as Gassendi and Hobbes considerably. To make matters worse, Descartes had failed to acquire the approbation of his metaphysics by the Sorbonne.[31]

So although in 1642 Descartes had every reason to be anxious over the fate of his work, his strategy to publicly denounce the rector of Utrecht University as a malicious, incom-

petent, and quarrelsome fraud was questionable, to say the least (AT VII.563–603/CSM II. 384–97).[32] Jacques Dinet (1584–1653), provincial superior of the Jesuits in Paris, confessor to Louis XIII (1601–43), and former prefect of Descartes at La Flèche, must have been astounded to be the addressee of such a public hatchet job on a foreigner of whose existence he was probably hardly aware. This foreigner, however, was no man to be slighted. By the early 1640s, Voetius, youngest delegate present at the Synod of Dordrecht (1619), was well on his way towards becoming the leading Calvinist theologian (p. 424) of the Dutch Republic. A descendant of an old patrician family with pretensions of nobility, and a militant Calvinist, he was not prepared to be insulted by an obscure French Catholic creating chaos at the newly established University of Utrecht.[33] But instead of putting on the gloves himself, he solicited one of his former pupils, Martin Schoock (1614–69), to enter the fray in his stead.

Schoock had been appointed to a Groningen chair in logic and physics in 1640, and his *Admiranda Methodus* of 1643 was a remarkable intervention by any standard, if only on account of the lurid portrait it painted of Voetius's nemesis as an alcoholic and a sexual predator.[34] Apart from such "psychological" observations, however, Schoock succeeded in identifying a number of serious complications resulting from the *Discours* and the *Meditationes*.[35] It goes without saying that in view of Descartes's evident rejection of substantial forms, he fully shared Voetius's reservations concerning his ability to account for natural movement at all.[36] But Schoock's analysis of Descartes's work went well beyond Voetius's assault on Regius. For a start, Schoock challenged Descartes's conception of science: his disregard for the opinion of his peers, his arrogant rejection of erudition, as well as his advice to concentrate on "clear and distinct ideas", all went to show that Descartes's theory of science was essentially subjectivist and perfectly unsuited to the academy. Descartes's proposals, or so Schoock argued, actually bore a close resemblance to the ravings of "enthusiasts".[37] Secondly, "Cartesianism", Schoock insisted, eventually led to atheism by ignoring the traditional proofs of God's existence, replacing them by highly questionable ones such as the ontological proof of the fifth meditation and the ridiculous argument in the third meditation on the basis of the clear and distinct idea we are supposed to have of God's essence (the cause of which must be God himself, who therefore must exist).[38] According to Schoock, human beings after the Fall lacked any such clear and distinct idea. Thirdly, Schoock continued, Descartes's philosophy promoted skepticism by introducing much too severe criteria for what could count as knowledge and what not. The Groningen professor favored a Peripatetic empiricism, as he made evident also in his *De Scepticismo* of 1652—one of the very few Dutch seventeenth-century treatises on the subject.[39]

As early as December 1642, Descartes knew about the imminent publication of the—anonymous—*Admiranda Methodus*, which was to appear in Utrecht in the spring of 1643. This enabled him to react immediately by publishing in Amsterdam by April or May 1643 his *Epistola ad Voetium*, since he held the Utrecht professor responsible for Schoock's initiative (AT VIIIB.2–194).[40] Instead of arguing in favor of his views, Descartes returned to his strategy pursued in the *Letter to Dinet* and once more set out to paint a picture of Voetius as a power hungry manipulator, whose political influence had to be curtailed as

soon as possible, which is why he sent two copies of his letter to (p. 425) the Utrecht municipality.[41] In its turn, the Utrecht *vroedschap* appointed a committee which subsequently found Descartes's letter to be libelous and advised to call upon the Frenchman to appear before the *vroedschap* and come up with a justification of his accusations. Descartes, however, refused to comply and repeated his suspicion that the *Admiranda Methodus* had been composed by Voetius, upon which another committee first established that Schoock had been the real author, and that as a consequence Descartes had committed libel, and that his *Epistola* had done serious harm to the university.

Faced with legal procedures—the municipality had turned over Descartes's dossier to the bailiff—as well as with the publication in October 1643 by the Senate of Utrecht University of its account of the unrest caused by his ideas, Descartes saw no other option than to call upon the French ambassador in the Dutch Republic,[42] Gaspard Coignet de la Thuillerie (1597–1653), who contacted the stadholder. As a consequence, Frederick Henry let it be known that Descartes had to be left alone, upon which the legal procedures in Utrecht against his person were cancelled. Now Descartes aimed his fury at Groningen University, which was presided over by Samuel Maresius (1599–1673), a professor of theology who happened to detest his Utrecht colleague. In April 1645, Maresius succeeded in issuing a statement from Schoock declaring it had indeed been Voetius who had initiated the *Admiranda Methodus*.[43] Soon Voetius started a lawsuit against his former student, and by this time nasty pamphlets were appearing in Utrecht and Groningen.

So it would seem that, by the mid-1640s, Descartes had every reason to be content, now that his Utrecht opponents were at each other's throats. Simultaneously, he had started his famous, extensive correspondence on the relationship between body and soul with Elizabeth of Bohemia (1618–80), Princess of the Palatinate, who at the time held residence in The Hague.[44] Most importantly, however, he had finally managed to find a suitable format for the publication of his physics: since the end of 1640 Descartes had been working on his *Principia Philosophiae*, which was published in Amsterdam in July 1644, dedicated to the princess. At last he had found a way to present his natural philosophy in a manner suitable for academic use.[45] From July to October he returned to Paris, trying to raise interest in his *Principia*, coming back to Egmond in the fall of 1644, ready now to turn his attention to the study of organic nature. Meanwhile, however, his relationship with his former disciple Regius had deteriorated sharply, and was now about to reach rock bottom.[46] During the summer of 1645, Descartes received an advance copy of the book Regius had been working on for several years, entitled *Fundamenta Physices* (1646), and Descartes was shocked as he found out that his first Dutch pupil was now about to present a materialist natural philosophy of his own, which on the one hand was heavily dependent on the views Descartes had only just set out in the *Principia*, but on the other completely ignored both his methodology and his (p. 426) metaphysics. Even worse, it ended up publicly questioning the immortality of the soul by arguing that it was nothing but a "mode" of the body. Clearly, Descartes did not want to be associated in any way with such dangerously heretical conclusions, manifestly at odds with his own metaphysics. But worse was to follow.

5. Leiden

First, by 1645 it was becoming evident that Descartes's ideas were also drawing attention at Leiden University, and just as in Utrecht they were giving rise to heated debate.[47] Second, it would soon turn out that his fight with Voetius was far from over. Finally, his disagreement with Regius was about to take a turn for the worse, leaving the erstwhile comrades in arms bitter enemies. In Leiden, as we have seen, it had been Burgersdijk who had ensured the viability of philosophy within the curriculum by producing a series of Peripatetic handbooks that were used across Europe. He had died in 1635, and by the late 1630s several successors had been appointed to the various chairs in philosophy he had held. However, Adriaan Heereboord (1613–61), a native from Leiden and professor of logic since 1640, appears to have been the most popular Leiden philosopher among his students, probably because of his penchant for holding disputations.[48] During the first half of 1644, Heereboord presided over several disputations in which Descartes's method had been defended and in which the supreme rule of Aristotle had been publicly questioned. In 1645, however, while Heereboord was awarded the additional chair of ethics, a new professor was appointed for physics and metaphysics, and to Heereboord's considerable chagrin, his new colleague, the Scotsman Adam Stuart (1591–1654), was an orthodox Aristotelian, who upon his arrival immediately expressed surprise over the liberties taken at Leiden.

But Stuart was in for more surprises, for Heereboord was not the only local professor with an interest in Descartes. The Leiden Arabist and mathematician Jacob Golius (1596–1667) was one of Heereboord's oldest Dutch friends, and he was on excellent terms as well with the theologian Abraham Heidanus (1597–1678), one of the champions of Dutch Reformed orthodoxy, who would be appointed to a Leiden chair in 1648. Frans van Schooten Jr. (1615–60), who in 1646 succeeded his father Frans van Schooten Sr. (1581–1646) to the chair of mathematics, was also a friend, and indeed, a collaborator as in 1649 he published the heavily edited Latin translation of the *Géométrie*.[49] After Jacob Revius (1586–1658) in February and March 1647 had held a series of disputations in which Cartesian doubt was being ridiculed, Descartes addressed a long letter to the curators of Leiden University: Were they aware of the fact that his good name and reputation were suffering from the behavior of Revius? All the curators did for now was summon Revius and Heereboord on May 20 and order them to no longer mention (p. 427) Descartes's name. Revius, however, subsequently published a highly detailed critique of Descartes's method and metaphysics,[50] and Adam Stuart made the serious mistake of announcing a disputation on Descartes's philosophy to be held on December 23. At any rate, he was not prepared to be opposed in the way that he would be, by one of the respondents, a former student of Regius and Heereboord by the name of Johannes de Raey (1622–1702).[51] The text of the disputation in question is lost, but according to Heereboord's account of the session it ended in total mayhem as Revius completely lost control of himself as well as of the huge student body present, and fights broke out among the audience.[52] When Heereboord prepared to strike back and announced a disputation to be held on December 28, the joint Leiden authorities barely managed to control Heereboord, but had him postpone

the session until February, so that the curators would have had time to convene and discuss the affair. So by the end of 1647 Cartesianism was starting to affect public order. In January, pamphlets were appearing, and Leiden was bracing itself for a major academic row.

What is more, the Dutch dispute over Descartes's views was turning into a national affair, now that Descartes's quarrels with Regius and Voetius were starting to affect the Leiden crisis over Cartesianism: we have seen how upset Descartes was in 1645 having read an advance copy of Regius's *Fundamenta physices*. By the time the book actually came out the following year he was still fuming, and in the preface to the French translation of the *Principia*, issued in the summer of 1647, he roundly accused his former Utrecht friend of plagiarism (AT IXB.19–20/CSM I.189). Regius immediately replied by publishing an *Explicatio mentis humanae*, upon which Descartes struck back in January 1648 with his scathing *Notae in programma quoddam*, which in turn was answered by Regius's further *Brevis explicatio mentis humanae* (Regius 1648).[53] To make matters worse, about this time, still in October 1647, Voetius had renewed his offense against Descartes by issuing the first part of his *Disputationes theologicae selectae* (1648–69), packed with references to the perils posed by Cartesianism.[54]

In Leiden, these events were watched closely. Heereboord whipped up the atmosphere in Leiden by holding a public lecture on January 13, on *De recte philosophice disputandi ratione*, and published it with a letter full of praise for Descartes. Both Revius and Stuart in pamphlets referred to the *Notae*, while Heereboord in his lectures alluded to Voetius's *Theological disputations*.[55] And all this transpired even before Heereboord had held his disputation, now scheduled for February 8, after the curators had had the opportunity to convene earlier that day. Hence, it could come as no surprise that Heereboord's disputation was canceled. Having interrogated all parties involved, the curators repeated their resolution of May 20, suspending all teaching of metaphysics, and although Heereboord, Revius, and Stuart were all reprimanded, and although they reiterated the primacy of Aristotle's philosophy, they were especially concerned to stop (p. 428) the theologians and philosophers from disturbing the peace. They were especially harsh in their indictment of Stuart, who during the following months lost support from his fellow theologians and whose continuing assaults on Cartesianism were in breach of the curators' resolutions.[56]

6. Departure

By May 1647 Descartes informed the Princess Elizabeth he was seriously considering leaving the Dutch Republic (AT V.15–17/CSMK 317–18),[57] tired of being slandered by pompous academics he could hardly take seriously, Descartes in his correspondence increasingly started revealing a sense of personal vulnerability. He was feeling old and becoming fearful of the powerful position Calvinist theologians occupied in Dutch society. During the summer of that year he found some relief from a prolonged stay in Paris, only to return to Egmond in October, just before his ideas once more would give rise to a major academic riot.[58] Still fretting over the injustice done to him in Utrecht, in February

1648 he sent his *Lettre apologétique* to the Utrecht *vroedschap* both in French and in Dutch, returning to Paris the following summer (AT VIIIB.199–275).[59] By now he had lost all interest in continuing his stay in the Dutch Republic. When, during the winter of 1648–9, he was officially invited to join the Swedish court, it took him some time to make up his mind, also as he was occupied with the tiresome task of completing *Les Passions de l'âme*, which was to be published in Paris in 1649. But he had had enough, so on 1 September he definitively left Egmond, on his way to Stockholm.[60]

Descartes, or so it would seem, had failed to appreciate that by the late 1640s his views were becoming seriously influential among a rapidly growing generation of young scholars, several of whom would soon be appointed to Dutch academic chairs, not in spite but because of their interest in Descartes. As long as they respected the separation of philosophy from theology, and agreed not to comment on the work being done in the "superior" Faculty of Theology, philosophers by and large were allowed to pursue their own interests.[61] In Leiden, Cartesianism was soon to become the predominant school of thought, after a series of appointments favoring Cartesian academics. Heereboord's status was to diminish considerably, due to the gradual denouement of his personal life: even by academic standards he drank heavily, and as a consequence got involved in a highly public quarrel with his Leiden in-laws, the De La Courts. After Heidanus's appointment in 1648, however, the German theologian Johannes Coccejus (1603–69) was installed in the Faculty of Theology, after which a powerful "Cartesio-Coccejan" alliance emerged.[62] Next, De Raey succeeded Stuart as the chair of natural philosophy in 1653, and François de le Boë Sylvius (1614–72) joined the medical faculty in 1658. (p. 429) In 1664 the Flemish philosopher Arnold Geulincx (1625–69) was appointed, as were the Cartesian physicians Florentinus Schuyl (1619–69) and Theodore Craanen (1620–90) in 1664 and 1670. The same year the Cartesian natural philosopher Burchard de Volder (1643–1709) came to Leiden, as did the distinguished theologian Christopher Wittichius (1625–87) in 1671.

While at Groningen and Franeker the authorities for the next few decades were careful to divide available chairs among Aristotelians and Cartesians, even in Utrecht Voetius soon turned out to be not quite as powerful as Descartes presumed him to be: in 1652, Johannes de Bruyn (1620–75) would be appointed professor of physics and mathematics, and in 1660 Regnerus van Mansvelt (1639–71) was offered the chairs of logic and metaphysics. Both were dedicated Cartesians. Even the Utrecht Faculty of Theology appointed theologians sympathetic to the cause of Cartesianism: in 1662 Frans Burman (1628–79), and two years later Louis Wolzogen (1633–90). As a matter of fact, Voetius's polemical stance and political ambitions in the course of time started to isolate him both from other Dutch Peripatetics and from broad factions in the Dutch Reformed Church itself. In particular, the way in which he had backed his anti-Copernicanism by referring to Lambert Danaeus's (1530–95) *Physica christiana* (1576) was actually rather exceptional:[63] fellow Aristotelians such as Arnold Verhel (1583–1664) from Franeker and Gisbert ab Isendoorn (1601–57) from Harderwijk were not that impressed by Danaeus at all, and made sure not to be implicated in the *Querelle d'Utrecht*.[64]

Of course the rise of Dutch Cartesianism in the 1650s and 1660s was facilitated considerably by the regime of “True Freedom”, in place during the first stadholderless period. Having studied mathematics at Leiden with Van Schooten, Johan de Witt (1625–72), Grand Pensionary of Holland and a gifted mathematician, was something of a Cartesian himself, having contributed to the second edition of the *Geometria* (1659–61).[65] But Descartes could also be ungrateful, commenting for instance upon Van Schooten’s awkward Latin in 1649, without acknowledging in any way the importance of Van Schooten’s efforts for the dissemination of his work (AT V.143, 393; Baillet 1691: II.376). He probably also ignored the extent to which the Netherlands had changed him, as he had changed the Netherlands, as Harold Cook recently put it.[66] In the Dutch Republic his initial insistence on the necessity of methodical rigor gradually made way for a much more empirical stance, in keeping with the well-established Dutch fascination with the details of nature.[67] Much as he hated to be drawn into academic disputes, he reveled in joining, for instance, Dutch anatomical research.[68]

As long as Dutch Cartesians made sure not to meddle in theology, they were left alone by the authorities. It was only during the 1660s that this tacit agreement would be tested severely, when in the province of Holland the author of a brilliant introduction to Descartes’s physics and metaphysics would launch a so-called Radical Enlightenment. (p. 430) Once Spinoza (1632–77) and his friends abandoned Descartes’s metaphysics, replacing it with a one-substance monism and the introduction of a universal determinism, and subsequently addressed some of the major political and theological issues of the day, Dutch Cartesians rose to the occasion, and spearheaded the campaign against Spinoza’s “atheism”. Well before the turn of the century they assumed the position of guardians of the very orthodoxy they once had been accused of dislodging.[69]

References

Akerman, Susanna (1991), *Queen Christina of Sweden and her Circle: The Transformation of a Seventeenth-Century Philosophical Libertine*. Leiden: Brill.

Ariew, Roger (1999), *Descartes and the Last Scholastics*. Ithaca, NY: Cornell University Press.

Ariew, Roger (2006), *Descartes Among the Scholastics*. Leiden: Brill.

Ariew, Roger (2014), *Descartes and the First Cartesians*. Oxford: Oxford University Press.

Ariew, Roger, Dennis Des Chene, Douglas M. Jesseph, Tad M. Schmaltz, and Theo Verbeek, eds. (2015), *Historical Dictionary of Descartes and Cartesian Philosophy*. Lanham: Scarecrow Press.

Baillet, Adrien (1691), *Vie de Mr. Des-Cartes*, 2 vols. Paris: Daniel Horthemels.

Beck, Andreas J. (2007), *Gisbertus Voetius (1589–1676): Sein Theologieverständnis und seine Gotteslehre*. Göttingen: Vandenhoeck & Ruprecht.

Bellis, Delphine (2013), “Empiricism without Metaphysics: Regius’s Cartesian Natural Philosophy”, in Mihnea Dobre and Tammy Nyden (eds.), *Cartesian Empiricisms*. Dordrecht: Springer, 151–83.

Berkel, Klaas van (2013), *Isaac Beeckman on Matter and Motion: Mechanical Philosophy in the Making*. Baltimore: Johns Hopkins University Press.

Bitbol-Hespériès, Annie (2000), “Cartesian Physiology”, in Stephen Gaukroger, et al. (eds.), *Descartes’ Natural Philosophy*. London: Routledge, 349–82.

Bos, Egbert P., and Han A. Krop (eds.) (1993), *Franco Burgersdijk (1590–1635): Neo-Aristotelianism in Leiden*. Amsterdam: Rodopi.

Bos, Erik-Jan (1999), “Descartes’s Lettre Apologétique aux Magistrats d’Utrecht: News Facts and Materials”, *Journal of the History of Philosophy* 37: 415–33.

Bos, Erik-Jan, ed. (2002), “The Correspondence between Descartes and Henricus Regius”. PhD dissertation, Utrecht University, Utrecht.

Bouillier, Henri (1854), *Histoire de la philosophie cartésienne*, 2 vols. Paris: Delagrave.

Bunge, Wiep van (2001), *From Stevin to Spinoza: An Essay on Philosophy in the Seventeenth-Century Dutch Republic*. Leiden: Brill.

Bunge, Wiep van (2004), “Philosophy”, in Willem Frijhoff and Marijke Spies (eds.), *1650: Hard-Won Unity: Dutch Culture in a European Context*. Assen: Van Gorcum and Basingstoke: Palgrave Macmillan, 280–346.

Bunge, Wiep van, Henri Krop, Bart Leeuwenburgh, Paul Schuurman, Han van Ruler, and Michiel Wielema, eds. (2003), *The Dictionary of Seventeenth and Eighteenth-Century Dutch Philosophers*, 2 vols. Bristol: Thoemmes.

Buning, Robin Onno (2013), “Henricus Reneri (1592–1639). Descartes’s Quartermaster in Aristotelian Territory.” PhD dissertation, Utrecht University, Utrecht.

(p. 431) Clarke, Desmond M. (1982), *Descartes’ Philosophy of Science*. Manchester: Manchester University Press.

Clarke, Desmond M. (2005), *Descartes: A Biography*. Cambridge: Cambridge University Press.

Cohen, Gustave (1920), *Écrivains français en Hollande dans la première moitié du XVIIe siècle*. Paris: Champion.

Cook, Harold J. (1992), “The New Philosophy in the Low Countries”, in Roy Porter and Mikulas Teich (eds.), *The Scientific Revolution in National Context*. Cambridge: Cambridge University Press, 115–49.

Cook, Harold J. (2007), *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age*. New Haven: Yale University Press.

Copenhaver, Brian P., and Charles B. Schmitt, eds. (1992), *Renaissance Philosophy*. Oxford: Oxford University Press.

Dechange, Klaus (1960), "Die frühe Naturphilosophie des Henricus Regius (Utrecht 1641)". PhD dissertation, Münster University, Münster.

Des Chene, Dennis (1996), *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*. Ithaca, NY: Cornell University Press.

Descartes, René (1996), *Verantwoordingh van Renatus Descartes aen d'achtbare overigheit van Uitrecht*, ed. Erik-Jan Bos. Amsterdam: Amsterdam University Press.

Dibon, Paul (1954), "L'Enseignement philosophique dans les universités néerlandaises à l'époque pré-cartésienne, 1575–1650". PhD dissertation, Leiden University, Leiden.

Dibon, Paul (1990), *Regards sur la Hollande du Siècle d'Or*. Naples: Vivarium.

Dopper, Jantien (2014), "A Life of Learning in Leiden. The Mathematician Frans van Schooten (1615–1660)." PhD dissertation, Utrecht University, Utrecht.

Douglas, Alexander X. (2015), *Spinoza and Dutch Cartesianism: Philosophy and Theology*. Oxford: Oxford University Press.

Duker, Arnoldus Cornelius (1893–1914), *Gysbertus Voetius*, 3 vols. Leiden: J. J. Groen.

Fatio, Olivier (1976), *Méthode et théologie: Lambert Daneau et les débuts de la scolastique réformée*. Geneva: Droz.

Frijhoff, Willem (2005), "L'École Illustre", in Guillaume van Gemert, et al. (eds.), *Orbis doctus, 1500–1850: Perspectieven op de geleerde wereld van Europa: plaatsen en personen. Opstellen aangeboden aan prof.dr. J.A.H. Bots*. Amsterdam: APA-Holland Universiteits Pers, 67–88.

Garber, Daniel (2001), *Descartes Embodied: Reading Cartesian Philosophy through Cartesian Science*. Cambridge: Cambridge University Press.

Gaukroger, Stephen (1995), *Descartes: An Intellectual Biography*. Oxford: Oxford University Press.

Gaukroger, Stephen (2001), *Francis Bacon and the Transformation of Early Modern Philosophy*. Cambridge: Cambridge University Press.

Gaukroger, Stephen (2006), *The Emergence of a Scientific Culture: Science and the Shaping of Modernity, 1210–1685*. Oxford: Oxford University Press.

Gorlaeus, David (1620), *Exercitationes Philosophicae quibus universa discutitur philosophia theoretica et plurima peripateticorum dogmata evertuntur*. Leiden: Johannes Commelinus.

Goudriaan, Aza (2006), *Reformed Orthodoxy and Philosophy, 1625–1750: Gisbertus Voetius, Petrus van Mastricht, and Anthonius Driessen*. Leiden: Brill.

Hankins, James (1990), *Plato in the Italian Renaissance*, 2 vols. Leiden: Brill.

Heyd, Michael (1990), "Descartes—An Enthusiast malgré lui?", in David Katz and Jonathan Israel (eds.), *Sceptics, Millenarians and Jews*. Leiden: Brill, 35–58.

Hotson, Howard (2007), *Commonplace Learning: Ramism and its German Ramifications, 1543–1630*. Oxford: Oxford University Press.

(p. 432) Israel, Jonathan I. (1995), *The Dutch Republic: Its Rise, Greatness, and Fall, 1477–1806*. Oxford: Oxford University Press.

Israel, Jonathan (2001), *Radical Enlightenment: Philosophy and the Making of Modernity, 1650–1750*. Oxford: Oxford University Press.

Jardine, Lisa (1974), *Francis Bacon: Discovery and the Art of Discourse*. Cambridge: Cambridge University Press.

Leijenhorst, Cees, et al., eds. (2002), *The Dynamics of Aristotelian Natural Philosophy from Antiquity to the Seventeenth Century*. Leiden: Brill.

Lüthy, Christoph (2012), *David Gorlaeus (1591–1612): An Enigmatic Figure in the History of Philosophy and Science*. Amsterdam: Amsterdam University Press.

McGahagan, Thomas A. (1976), "Cartesianism in the Netherlands, 1639–1676. The New Science and the Calvinist Counter-Reformation." PhD dissertation, Pennsylvania University, Philadelphia.

Nauta, Doede (1935), *Samuel Maresius*. Amsterdam: H. J. Paris.

Nauta, Lodi (2009), *In Defense of Common Sense: Lorenzo Valla's Critique of Scholastic Philosophy*. Cambridge, MA: Harvard University Press.

Nyden-Bullock, Tammy (2007), *Spinoza's Radical Cartesian Mind*. London: Continuum.

Ong, Walter J. (1958), *Ramus: Method and the Decay of Dialogue*. Cambridge, MA: Harvard University Press.

Regius, Henricus (1641), *Disputatio medica prima [–tertia] De illustribus aliquot quaestionibus physiologicis*. Utrecht: Aeg. Roman.

Regius, Henricus (1642), *Responsio, sive Notae in Appendicem ad Corollaria Theologico-Philosophica Viri Reverendi et Celeberrimi D. Gisberti Voetii*. Utrecht: J. van Doorn.

Regius, Henricus (1648), *Brevis Explicatio Mentis Humanae, sive animae rationalis: ubi explicatur, quid sit, et quid esse possit*. Utrecht: Th. ab Ackersdijck.

Revius, Jacob (1648), *Methodi cartesianae consideratio theologica*. Leiden: Hieronymus de Vogel.

Rotschuh, Karl E. (1968), "Henricus Regius und Descartes. Neue Einblicke in die frühe Physiologie (1640–1641) des Regius", *Archives internationales d'histoire des sciences* 21: 39–66.

Rowen, Herbert H. (2003), *John de Witt: Statesman of the "True Freedom"*. Cambridge: Cambridge University Press.

Ruestow, Edward G. (1973), *Physics at Seventeenth and Eighteenth-Century Leiden: Philosophy and the New Science in the University*. The Hague: Martinus Nijhoff.

Ruler, J. A. van (1995), *The Crisis of Causality: Voetius and Descartes on God, Nature, and Change*. Leiden: Brill.

Sassen, Ferd L. R. (1941), *Henricus Renerius, de eerste "Cartesiaansche" hoogleraar Utrecht*. Amsterdam: Noord-Hollandsche Uitgeversmaatschappij.

Schmaltz, Tad M. (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. New York: Oxford University Press.

Schmitt, Charles B. (1983), *Aristotle and the Renaissance*. Cambridge, MA: Harvard University Press.

Schoock, Martin (1643), *Philosophia Cartesiana sive Admiranda Methodus novae philosophiae Renatus Descartes*. Utrecht: Johannes van Waesberge.

Schoock, Martin (1652), *De Scepticismo. Pars prior*. Groningen: Henricus Lussinck.

Strazzoni, Andrea (2015), "Johannes de Raey and the Cartesian Philosophy of Language", *Lias* 42: 189–220.

Thijssen-Schoute, C. Louise (1989 [1954]), *Nederlands Cartesianisme*. Utrecht: HES.

(p. 433) Verbeek, Theo (1988), *René Descartes et Martin Schoock: La Querelle d'Utrecht*. Paris: Les impressions nouvelles.

Verbeek, Theo (1992), *Descartes and the Dutch: Early Reactions to Cartesian Philosophy, 1637–1650*. Carbondale: Southern Illinois University Press.

Verbeek, Theo, ed. (1993a), *Descartes et Regius: Autour de l'Explication de l'esprit humain*. Amsterdam: Rodopi.

Verbeek, Theo (1993b), “Le contexte historique des Notae in programma quoddam”, in Theo Verbeek (ed.), *Descartes et Regius: Autour de l’Explication de l’esprit humain*. Amsterdam: Rodopi, 1–33.

Verbeek, Theo (1993c), “Henricus Reneri (1593–1639)”, in H. W. Blom, et al. (eds.), *Deventer denkers: De geschiedenis van het wijsgerig onderwijs te Deventer*. Hilversum: Verloren, 123–34.

Verbeek, Theo (1993d), “From Learned Ignorance to Scepticism: Descartes and Calvinist Orthodoxy”, in Richard H. Popkin and Arjo Vanderjagt (eds.), *Scepticism and Irreligion in the Seventeenth and Eighteenth Centuries*. Leiden: Brill, 31–45.

Verbeek, Theo (1993e), “Tradition and Novelty: Descartes and Some Cartesians”, in Tom Sorell (ed.), *The Rise of Modern Philosophy: The Tension between the New and Traditional Philosophies from Machiavelli to Leibniz*. Oxford: Oxford University Press, 167–96.

Verbeek, Theo (1994), “Regius’ *Fundamenta Physices*”, *Journal of the History of Ideas* 55: 533–51.

Verbeek, Theo (2002), “Dutch Cartesian Philosophy”, in Steven Nadler (ed.), *A Companion to Early Modern Philosophy*. Oxford: Oxford University Press, 167–82.

Verbeek, Theo (2003a), *Spinoza’s Theological-Political Treatise: Exploring “the Will of God”*. Aldershot: Ashgate.

Verbeek, Theo (2003b), “A Philosopher’s Life”, in Thomas M. Lennon (ed.), *Cartesian Views: Papers Presented to Richard A. Watson*. Leiden: Brill, 53–69.

Vermij, Rienk (2002), *The Calvinist Copernicans: The Reception of the New Astronomy in the Dutch Republic, 1575–1750*. Amsterdam: Koninklijke Nederlandse Akademie van Wetenschappen.

Voetius, Gisbertus (1648–69), *Disputationes theologicae selectae*, 5 vols. Utrecht-Amsterdam: Van Waesberge.

Vrijer, Marinus Johannes Antonie de (1917), *Henricus Regius: Een “cartesiaansch” hoogleeraar aan de Utrechtsche Hoogeschool*. The Hague: Martinus Nijhoff.

Wall, Ernestine G. E. van der (1996), “Cartesianism and Cocceianism: A Natural Alliance?”, in Michelle Magdeleine, et al. (eds.), *De l’Humanisme aux Lumières: Bayle et le protestantisme: Mélanges en l’honneur d’Élisabeth Labrousse*. Paris: Universitas and Oxford: Voltaire Foundation, 445–55.

Watson, Richard (2002), *Cogito Ergo Sum: The Life of René Descartes*. Boston: David R. Godine.

Notes:

([1]) See the entry on Huygens in Ariew et al. 2015.

([2]) Translation: Watson 2002: 288.

([3]) Clarke 2005: 394–400; Akerman 1991; Baillet 1691: II.465: “jamais Philosophe n’a fait moins de cas de la gloire prétendue que la plupart trouvent dans ce qui s’appelle réputation”. Even Baillet admits that Descartes was “not entirely exempt from vanity” (491).

([4]) Verbeek 1992: 81–2.

([5]) Clarke 2005: 52. Clarke is remarkably straightforward in his assessment of Descartes’s personality. As early as the late 1630s, Clarke avers: “He had become a reclusive, cantankerous, and oversensitive loner, who worried incessantly about his place in history and the priority he claimed for various discoveries” (180).

([6]) Verbeek 1992: epilogue; Van Bunge 2004.

([7]) Bouillier 1854: I, chs. 12 and 13; Cohen 1920: bk. III; Thijssen-Schoute 1989 [1954]; McGahagan 1976; Dibon 1990; Verbeek 1992 and 2002; Van Bunge 2001: ch. 2; Cook 2007: ch. 6.

([8]) Gaukroger 1995: ch. 3; Clarke 2005: ch. 2; Van Berkel 2013: ch. 1.

([9]) Clarke 2005: ch. 4, and 421–3.

([10]) See the entries on these Schools in Van Bunge et al. 2003; Frijhoff 2005.

([11]) See for instance Verbeek 2003b.

([12]) Dibon 1954; Van Bunge 2001: ch. 1.

([13]) Vermij 2002: 132–4.

([14]) Ruestow 1973: ch. 2; Bos and Krop 1993; Vermij 2002.

([15]) Schmitt 1983; Copenhaver and Schmitt 1992: ch. 2.

([16]) Hankins 1990; Copenhaver and Schmitt 1992: ch. 3; Nauta 2009.

([17]) Ong 1958; Hotson 2007.

([18]) Jardine 1974; Gaukroger 2001.

([19]) Leijenhorst et al. 2002.

([20]) Gaukroger 2006: esp. chs. 8 and 9.

([21]) On the (dis)continuities between late scholasticism and Cartesianism, see Van Ruler 1995; DesChene 1996; and Ariew 1999, 2006, and 2014.

([22]) Clarke 2005: 168–75.

([23]) Sassen 1941; Dibon 1954: 197–203; Verbeek 1993c; Buning 2013.

([24]) Lüthy 2012: ch. 4.

([25]) Verbeek 1993c; Buning 2013: ch. 4.

([26]) Descartes 1996: 5–6.

([27]) Verbeek 1988: 399; Descartes 1996: 76–7.

([28]) De Vrijer 1917; Dechange 1960; Rotschuh 1968; Verbeek 1992: ch. 2; Verbeek 1993a, and 1994; Bos 2002; Bellis 2013.

([29]) Regius 1641 and 1642; Verbeek 1992: 14–19; Van Ruler 1995: ch. 1. For Voetius's corollaries and appendix, see Verbeek 1988: 95–115.

([30]) Verbeek 1988: 122.

([31]) Clarke 2005: ch. 7.

([32]) Verbeek 1988: 131–51; Verbeek 1992: 19–20; Clarke 2005: 226–9.

([33]) On Voetius, see Duker 1893–1914; Van Ruler 1995; Goudriaan 2006; Beck 2007.

([34]) Schoock 1643. For an annotated translation of the text, see Verbeek 1988: 135–329.

([35]) Verbeek 1992: 20–3; Van Ruler 1995: 172–98.

([36]) Verbeek 1988: 281–7.

([37]) Verbeek 1988: 195, 100, 205, 255, 312–14. See also Heyd 1990.

([38]) Verbeek 1988: 270–6 and 315–17.

([39]) Verbeek 1988: 307–11; Schoock 1652: 201–45.

([40]) Verbeek 1988: 323–99; Clarke 2005: 237–42.

([41]) Verbeek 1992: 29.

([42]) It was fully entitled *Testimonium Academiae Ultrajectinae, et Narratio Historica qua defensae, qua exterminatae novae Philosophiae*. For a French translation, see Verbeek 1988: 71–123.

([43]) Verbeek 1992: 30. See on Maresius, Nauta 1935.

([44]) Clarke 2005: ch. 9.

([45]) Clarke 2005: ch. 10.

([46]) Verbeek 1992: ch. 4; Verbeek 1994; Bos 2002; Clarke 2005: ch. 11.

([47]) Ruestow 1973: ch. 3; Verbeek 1992: chs. 4 and 5; Clarke 2005: ch. 12.

([48]) Verbeek 1993e.

([49]) Dopper 2014.

([50]) Revius 1648.

([51]) Ruestow 1973: ch. 4; Verbeek 1993e; Strazzoni 2015; Douglas 2015.

([52]) Verbeek 1992: 48–9.

([53]) Regius's *Explicatio* was reprinted in Descartes's *Notae*: AT VIIIB.342–6/CSM I.294–6; Verbeek 1993b.

([54]) Verbeek 1993d.

([55]) Verbeek 1992: 63–7.

([56]) Verbeek 1992: 67–70.

([57]) Clarke 2005: 338.

([58]) Clarke 2005: ch. 13.

([59]) Descartes 1996; Bos 1999.

([60]) Clarke 2005: ch. 14.

([61]) Van Bunge 2004.

([62]) Van der Wall 1996.

([63]) Fatio 1976; Van Ruler 1995: ch. 3; Goudriaan 2006: ch. 6.

([64]) Van Bunge 2004. For further details about these lesser known philosophers: Van Bunge et al. 2003.

([65]) Israel 1995: ch. 34; Rowen 2003.

([66]) Cook 2007: 227.

([67]) Clarke 1982; Cook 1992; Garber 2001.

([68]) See for instance Gaukroger 1995: 270 ff; Bitbol-Hespériès 2000; Schmaltz 2017: ch. 5.

([69]) Van Bunge 2001; Israel 2001;Verbeek 2003a; Nyden-Bullock 2007; Douglas 2015.

Wiep van Bunge

Erasmus University Rotterdam

The Curious Case of Henricus Regius

Tad M. Schmaltz

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Abstract and Keywords

This chapter concerns the complex relation of the Dutch medical professor Henricus Regius (1598–1679) to Descartes and Cartesianism. What makes the case of Regius curious is that even after he was publicly repudiated by Descartes, he was recognized by some of his contemporaries as a representative of Cartesian philosophy. The discussion of Regius is structured around three stages of his relation to Cartesianism: 1) his initial role as a trusted disciple of Descartes, followed by 2) his controversies with Descartes and other Cartesians, and ending with 3) the importance of his role in post-Descartes Cartesian medicine.

Keywords: Descartes, Dutch Cartesianism, medicine, physics, Henricus Regius

(p. 434) RENÉ Descartes is well known to the general public as “the father of modern philosophy”, the creator of that paradigmatically modern movement, Cartesianism. By contrast, Henricus Regius (Henrik de Roy) is known for the most part only to dedicated specialists. Yet one central claim in this chapter is that the case of Regius serves to illustrate the extent to which Descartes did not have complete control over the movement he created.

Regius was born in 1598, in Utrecht, to a wealthy family of brewers. His parents died from the plague when he was young, and an uncle raised him. Regius studied first law and then medicine at Franeker, Groningen, and Leiden, and after stops in Paris and Montpellier, he obtained his medical degree in Padua in 1623. He subsequently served as town physician in Utrecht and head of a Latin school in Naarden. During his time in the latter position, Regius came into conflict with a local minister and was called before the Church Council of Amsterdam. The issue was resolved once he agreed to formally renounce heterodox views concerning issues such as the resurrection of the body. Regius was appointed as an “extraordinary professor” (equivalent to an adjunct member) of medicine and botany in 1638 at the newly established university at Utrecht, and the following year he

was promoted to “ordinary” (regular rank) professor. In 1641 he was granted the right—soon to be revoked—to lecture on physics.

Regius was influenced by Descartes’s writings, and he became a primary target of critics of Descartes’s “new philosophy” during an initial controversy that led to the first official condemnation of Cartesianism in 1642. Though Descartes had high praise for Regius at this point, relations between the two soon became strained due to Regius’s plan to publish his *Foundations of Physics* (*Fundamenta physices*), a treatise on mechanistic physics. When Regius published this text in 1646 despite Descartes’s warning not to do so, Descartes publicly repudiated his former disciple.

After Descartes’s death, Dutch and French Cartesians continued Descartes’s attacks on Regius. Yet these criticisms did not impede Regius’s work in medicine. Expanded editions of his *Foundations* were published with the new title, *Philosophy of Nature* (p. 435) (*Philosophia naturalis*) (Regius 1654 and 1661b). The last edition of this text was dedicated to Charles II, and in return Regius received a knighthood. As a companion to his theoretical work on medicine in the 1647 *Foundations of Medicine* (*Fundamenta medica*), Regius published his *Practice of Medicine* (*Praxis medica*) (Regius 1657b), which includes descriptions of medical treatments. After a long and fruitful career in medicine, Regius died in Utrecht in 1679.[1]

During the seventeenth century there was a narrative concerning Regius that presents him as a rebel against the Cartesian cause. What makes the case of Regius curious, however, is the fact that even after Descartes’s repudiation of him, there continue to be references to him as a representative of Cartesian philosophy. In the discussion that follows, I attempt to explain this curious fact. This discussion is structured around three stages of Regius’s relation to Cartesianism, starting with his role as a trusted disciple of Descartes (§1), followed by his controversies with Descartes and other Cartesians (§2), and ending with the importance of his role in post-Descartes Cartesian medicine (§3). In conclusion, I offer some reflections on what the case of Regius has to teach us about the nature of early modern Cartesianism (§4).[2]

1. Regius as Cartesian Disciple

In his polemical attack on Descartes, in the *Admirable Method of the New Philosophy of René Descartes* (*Admiranda methodus novae philosophiae Renati des Cartes*), the Groningen professor Martin Schoock refers at several points to the *Medicus Cartesianus*: the Cartesian physician (Schoock 1643: pref. (n.p.), 132, 141, 147). Schoock is speaking not of Descartes, however, but of his then-disciple Regius. Prior to his exposure to Descartes, Regius had been trained in medicine at Padua by Sanctorius Sanctorius (1561–1636), a famous Italian physicist who applied quantitative methods to medical issues.[3] This training no doubt predisposed Regius to be receptive to the sort of mechanistic physiology that he found in the fifth part of Descartes’s *Discourse* and in the accompanying *Dioptrics* and *Meteors*, which were published in 1637. Prior to his appointment at Utrecht, Regius gave private lectures based on this material. The popularity of these lectures serves in

part to explain Regius's initial appointment to a newly established chair in theoretical medicine at the university. Yet Regius himself also felt that he owed this appointment to Descartes, as indicated by Descartes's report in a 1638 letter that "I have received this week letters from a Doctor who I have never seen nor known, and who nevertheless thanks me very affectionately for what I have done to make him Professor in a university where I have neither friends nor power" (Descartes to Mersenne, (p. 436) August 23, 1638, AT II.334).[4] Descartes soon began to exchange letters with Regius, and in 1640 Descartes sent the Utrecht professor a draft of his *Meditations*. Though this work would later play a prominent role in Descartes's repudiation of Regius, initially Regius seemed to Descartes to be a particularly promising conduit for the introduction of his views into the Dutch universities.

In his *Letter to Father Dinet* (1642), Descartes mentions that before his appointment at Utrecht, Regius had already written "a complete *physiologia*" based on Descartes's published writings (AT VII.582–3), where this term includes physics as well as what we call physiology. Based in part on Descartes's advice, Regius decided initially to forego publishing the work and to present the material rather in the form of disputations on theoretical medicine.[5] This focus is indicated in the title of the collection, *Physiology or Cognition of Health* (*Physiologia sive cognitio sanitatis*) (Regius 1641a).[6] The three disputations concern the definition of health, the distinction between natural and animal actions, and the signs of disease.

The presentation in 1641 of the disputations included in *Physiology* prompted no great controversy. However, toward the end of this year Regius offered a second set of disputations—entitled *On Some Notable Physiological Questions* (*De illustribus aliquot quaestionibus physiologicis*) (Regius 1641b)—that trigged an initial condemnation of the "new philosophy" of Descartes. These disputations included theses defending Copernicanism and claiming that the human being is an *ens per accidens* as opposed to an *ens per se* formed by the union of a substantial form with matter.[7] The rector at Utrecht at the time, the conservative theologian Gisbertus Voetius (1589–1676), was infuriated by these theses, the former because he took them to conflict with the clear biblical claim that the sun orbits a stationary earth, and the latter because he took them to conflict with the dogma of the resurrection of the body.[8] There followed a sharp exchange between Voetius and Regius, and at Voetius's insistence Cartesianism was officially banned in Utrecht in 1642, in part on the grounds that it is at odds with the "old philosophy" that students required for their study in the "higher faculties" of medicine, law, and—most relevant here—theology. In addition, Regius's recently-won right to lecture on physics was withdrawn.

Enraged by this ban, Descartes took it upon himself to provide his own defense in the public *Letter to Dinet*, written to the Provincial of the French Jesuits. However, this letter merely complicated matters for his own supporters at Utrecht since it claimed that the municipality had officially sanctioned the teaching of Cartesianism in appointing Regius to a chair in medicine, and that Voetius had misused the powers of his office of (p. 437) rector in interfering with Regius's teaching. Voetius subsequently enlisted the aforementioned Martin Schoock to renew the attack on Descartes's philosophy by publishing the

Admirable Method. In this text we find perhaps the first insinuation of the creation of a new Cartesian sect that encourages the use of radical doubt to reject the wisdom of past philosophical and theological traditions. For Schoock, Descartes was proposing his own subjective opinions as the new standard for truth, requiring that any follower "must reckon Descartes to be a new Pythagoras, and worship him as such" (Descartes and Schoock 1988: 196).[9]

At this point Descartes was well-disposed to Regius, as indicated by a claim in an open *Letter to Voetius*—a 1643 response to the *Admirable Method*—that he is "so confident of [Regius's] intelligence" that there is nothing in his writings that "I could not freely acknowledge as my own" (AT VIIIB.163).[10] Admittedly, there is a weakening of confidence in Regius that is indicated by Descartes's claim in a 1644 letter that the Leiden professor Heereboord has "declared more openly for me, and cited me with more praise, than M. de Roy ever had" (To Pollot, January 8, 1644, AT IV.77).[11] However, this shift pales in comparison to the change that occurred in 1645—namely, Regius's transition from being Descartes's disciple to being an outcast from his circle of confidants.

2. Regius as Cartesian Outcast

I have noted Descartes's report that by 1641 Regius had completed a "complete *physiologia*" that covers physics as well as medicine. In 1645, Regius decided to move forward on this project, preparing for publication his *Foundations of Physics*. He sent a draft of the text to Descartes for his review. Descartes initially skimmed a few pages of the manuscript and objected merely to the fact that Regius had written the work in the form of a disputation. However, a subsequent and more thorough consideration of the text made clear to Descartes his more substantive disagreements with Regius. Descartes reports to Regius that he reacted with "astonishment and grief" to claims in the final chapter of this work, "On Man", that concern God and the human mind (Descartes to Regius, July 1645, Descartes and Regius 2002: 187–8/CSMK 254–5). In the draft that he sent to Descartes, Regius claims—contrary to Descartes's express opinion—that we cannot prove the existence of God on the basis of our idea of him, since our possession of this idea is compatible with the fact that there is nothing in reality that corresponds to it. Moreover, Regius disputes Descartes's demonstration of the real distinction of mind from body when he insists that natural reason alone cannot preclude the possibility that the human mind is (p. 438) a mode of body. Descartes notes that whereas Regius had previously claimed that a human being is an *ens per accidens*, he now falls into the opposite error of denying that the human mind must be an immaterial substance, an error which is "far worse" than his original one (Descartes and Regius 2002: 188/CSMK 255).

In his final letter to Descartes, Regius protests that he in fact emphasized in his text that even though natural reason alone cannot prove the real distinction, Scripture places beyond doubt the claim that our soul is immaterial and immortal (Regius to Descartes, July 23, 1645, Descartes and Regius 2002: 189). There is the claim that Regius appealed to Scripture merely in order to placate his theological critics.[12] However, this strategy would

hardly have been effective against critics such as Voetius, who were as insistent as Descartes that natural reason can establish both the existence of God and the immateriality of our soul.[13] In taking a fideist stand on these issues, Regius was staking out his own distinctive—and controversial—position.

In this final letter Regius also offered some inflammatory remarks on the *Meditations*. When asked initially to comment on this text in 1640, Regius provided primarily minor corrections, and Descartes felt compelled to request from Regius more substantive comments (Descartes to Regius, June 1640, Descartes and Regius 2002: 51). Descartes perhaps should have heeded the warning: Be careful what you wish for! For, in 1645, Regius was emboldened to reveal a rather critical view of the *Meditations*. In this letter, Regius begins by reporting that

> many honorable gentleman have often told me that they have too good an opinion of the excellence of your mind to believe that you have, in the bottom of your soul, no sentiments contrary to those which have appeared in public under your name. And to conceal nothing from you, several here are persuaded that you have greatly discredited your philosophy in publishing your metaphysics. You promise nothing but what is clear, certain and evident; but, to judge by this beginning, they claim that there is nothing but what is obscure and uncertain, and the disputes that you have had with skilled people prompted by this beginning serve only to multiply the doubts and darkness.
>
> (Regius to Descartes, July 23, 1645, Descartes and Regius 2002: 190)

There is in fact an example of this sort of reaction to Descartes in a letter from the Dutch Arminian theologian Caspar Barlaeus (1584–1648), who offers the following in response to a request for comment on the *Meditations*:

> Where [Descartes] rebukes and condemns the trite, he offers nothing better. He promises proofs such that “none more solid can be proffered by the human mind”, much to my surprise, since I do not expect from the human mind more than probable reasons. He promises us geometrical evidence, and leads us into Cimmerian darkness and Egyptian obscurity.
>
> (Barlaeus to Constantijn Huyghens, August 7, 1642, quoted in McGahagan 1976: 127)

(p. 439) Though it is not clear whether he knew Barlaeus’s reaction to the *Meditations*, Regius’s remarks to Descartes indicate that this sort of reaction was not unprecedented in the Dutch intellectual community.

Regius prefaces his report to Descartes of the negative views of the “honorable gentlemen” with the warning to his correspondent that “you would perhaps do yourself more injury if you declare that … you have sentiments remote from mine touching on metaphysics”. Regius’s suggestion is that he was doing Descartes a favor by providing a ver-

sion of Cartesian natural philosophy in the *Foundations of Physics* that jettisons Descartes's controversial metaphysical prolegomena.

Nonetheless, Regius also closes his letter by referring to his text as "my book, or to speak better, your book, since it truly comes from you" (Descartes and Regius 2002: 190). Clearly he did not want at this point to cut his ties to Descartes. Indeed, there is evidence that he altered the *Foundations* to make it more acceptable to Descartes, for in the first edition of this text, published in 1646, there is neither the claim that the idea of God does not provide the basis for proving his existence, nor the suggestion that the human soul may be a mode of body.

Matters had gone too far by this point for such gestures to have any effect. When Descartes saw the published version of the *Foundations*, he could take it to be only a dangerous repudiation of the metaphysical foundations required for his natural philosophy. Descartes had threatened to disown Regius if he published this text, and Claude Picot presented him with an opportunity to do just that when he asked Descartes to write a preface for Picot's French translation of the *Principles of Philosophy*. Descartes took advantage of this opportunity, writing in his preface:

> Last year [Regius] published a book entitled *Fundamenta physicœ* [*sic*] in which, concerning physics and medicine, it seems he has taken everything from my writings, those I have published as well as a still imperfect work on the nature of animals that fell into his hands; nevertheless, because he transcribed it poorly and changed the order, and denied certain truths of metaphysics on which all physics must be founded, I am obliged to disown the work entirely. (AT IXB.19/CSM I. 189)

Descartes's emphasis on the importance of certain metaphysical views for his physics can be seen as a response to the view of the "honorable gentleman" Regius mentioned—namely, that Descartes could not have been serious in embracing these questionable views. What is new here, though, is Descartes's implicit charge that Regius illicitly and incompetently plagiarized his "work on the nature of animals", that is to say, the unpublished and unfinished *Treatise on Man* (*Traité de l'homme*).[14]

We find more information about this additional charge in Descartes's correspondence dating from this time. Thus in a 1647 letter to Elisabeth he indicates that what Regius mistranscribed and misunderstood was

(p. 440)

> the whole section where, dealing with the motions of the muscles, I take as an example two of those that move the eye. So fond was he of this passage that twice in his book he repeats, word for word, two or three pages from this section. And yet he has not understood what he wrote, for he has omitted the main point, namely that the animal spirits that flow from the brain to the muscles cannot return by the same passage through which they came. Without this observation, everything

> he writes is worthless, and because he did not have my diagram, he produced one that clearly shows his ignorance. (March 1647, AT IV.626/CSMK 315)

The section from the *Treatise on Man* Descartes has in mind here concerns what he calls elsewhere his "nice piece on the motion of the muscles",[15] that is, his account of the operation of the antagonistic muscles of the eye. In his *Foundations of Physics*, Regius offers a remarkably similar account of this operation (see Regius 1646: 234). Regius consistently insisted that he had never seen Descartes's unpublished text, and it is possible that he learned the details of the account in the *Treatise on Man* through some means other than his own reading of that work.[16]

In any event, it must also be said in Regius's defense that the charge of plagiarism concerns only a relatively limited section of Descartes's text on what is after all a matter of detail. There certainly is no support for Descartes's suggestion in his 1647 preface that Regius has "taken everything" from his writings. Indeed, immediately preceding Regius's account of the anagonistic muscles in the *Foundations* is his claim—absent from Descartes's writings—that there is a kind of circulation of the animal spirits that is similar to the circulation of the blood. In support of this claim, Regius cites his own experiments with slugs (Regius 1646: 231–2).[17] There also is Descartes's own earlier admission in the *Letter to Dinet* that Regius had constructed a complete *physiologia* on his own, having seen at that point only Descartes's *Discourse* and *Essays* (AT VII.582–3). Moreover, in a letter to Regius concerning his *Physiology*, Descartes notes that

> there are many other things in your theses that I have ignored, and also much, so far as I have knowledge of it, that I have explained in detail otherwise than you have explained it here. This however does not surprise me; for it is much more difficult to give one's opinion on all things which concern medical matters, which is the job of the teacher, than to choose the things that are easiest to know, and precisely to leave aside the rest, as I myself do in the other sciences.
>
> (Descartes to Regius, November 1641, Descartes and Regius 2002: 87)

The indication here is that it is Regius, as the teacher of medicine, who has covered more territory than Descartes, the dabbler in the sciences, an indication that seems to be **(p. 441)** confirmed by Regius's original proposal concerning the circulation of the animal spirits. Regius was no mere plagiarizer, but had a mind of his own in developing the details of Descartes's sketchy physiology.

Descartes's denunciation and charge of plagiarism in the 1647 preface precipitated a final break from Regius. That same year, as part of a medical disputation on the inflammation of the feet and legs, Regius and one of his medical students, Petrus Wassenaer (†1680), composed a short corollary that summarizes the metaphysical issues on which Regius departs from Descartes.[18] Though the disputation itself was suppressed due to the official prohibition at Utrecht of discussions of Descartes, Wassenaer circulated copies of this summary with the title, *Explanation of the Human Mind* (*Explicatio mentis humanae*).[19] Included in the summary are the points concerning the difficulties concern-

ing the proof of God and the real distinction that Regius had left out of the initial edition of his *Foundations of Physics*.[20]

Descartes responded immediately by composing his *Comments on a Certain Broadsheet* (*Notae in programma quoddam*), in which he insists on the soundness of his own proofs of the existence of God and the real distinction, as well as on the need to attribute to mind a pure intellect that is not dependent on the body. There was a response to Descartes's response in Regius's *Brief Explanation of the Human Mind* (*Brevis explicatio mentis humanae*) (1648). However, Descartes failed to engage further, and it was left to his Dutch supporter, Tobias Andreae (1604–76), to provide a rejoinder to this work after Descartes's death. This Andreae did in his *Awaited Brief Reply to the Brief Explanation of the Human Mind of Henricus Regius* (*Brevis replicatio reposita Brevi explicationi mentis humanæ Henrici Regii*) (1653), in which he argues that it can be demonstrated that the human mind is a substance really distinct from body, and thus that it cannot be a mode of body; that the human mind has "inorganic faculties", such as pure intellect and will, that do not depend on body; and that universal and purely intellectual ideas are innate to the mind, and thus not drawn from sense experience (Andreae 1653: 21–81, 98–113, and 149–63). The fact that there was resistance within the Dutch Cartesian community to Regius's particular form of Cartesianism is further confirmed by the 1687 remark of his former student, Johannes de Raey, that "before Spinoza, some of whose errors he shared, Regius corrupted philosophy" (Raey 1692: 666).[21]

On the French front, Clerselier took up the defense of Descartes against Regius. In a preface to the 1657 edition of Descartes's *Letters*, Clerselier berates Regius for excluding his initial praise for Descartes in the 1646 *Foundations* from the 1654 edition of that work, *Philosophy of Nature*. Perhaps more galling to Regius, Clerselier revives the charge of plagiarism by claiming that Regius benefitted from views of unpublished works of Descartes that "fell into his hands" (AT V.754). Regius responded by publishing, also (p. 442) in 1657, a second edition of his *Brief Explanation* that adds an attack on Clerselier by a certain Carolus Fabricius, perhaps a pseudonym for Regius himself.[22]

In spite of this attack, Clerselier invited Regius to provide figures for the edition of the *Treatise on Man* that Clerselier was preparing. Regius rejected the invitation in a letter that reveals that the wounds from Clerselier's previous attack were still raw (Regius 1661a: 38–40). When Regius published this letter in 1661, he appended to it a brief preface—from none other than Carolus Fabricius—that draws attention to the unwarranted attack on Regius in the "slanderous preface" of Clerselier.

Regius's rebuff of Clerselier, along with Descartes's earlier rebuff of Regius, would seem to indicate that Regius was an outsider to early modern Cartesianism. Indeed, as I indicated at the outset, there was a narrative from the seventeenth century that reflects just this view. Clerselier passed his own negative view of Regius, through Jean-Baptiste Legrand, to Descartes's biographer Adrien Baillet. In his *Life of Descartes* (1691), Baillet notes that though he was "the first Disciple of Descartes", Regius later "resolved to sacrifice the honor of his Master for his own" in publishing his *Foundations of Physics* (Baillet

1970: II.21 and 269).[23] Baillet adds that “Aristotle perhaps never carried his ingratitude so far toward his master Plato”, and that “Maximus the Cynic has never treated his master Gregory of Nazianzus with more insolence” (II.271). Regius’s insolence and ingratitude are reflected in the fact that he was “the first plagiarist of Descartes” who also was “the first rebel among his disciples, or the first schismatic among his supporters” (II.171).

This view of Regius as a Cartesian outsider may seem to be confirmed by prominent anti-Cartesian elements of his system. I have noted his rejection of Descartes’s arguments for the existence of God and the real distinction of mind and body. But Regius also endorsed certain empiricist doctrines inimical to Descartes’s own views. In the initial broadsheet to which Descartes’s *Comments* is a response, Regius offers theses that reject innate ideas and affirm that “all common notions that are engraved in the mind have their origin in observation of things or in verbal instruction” (AT VIIIB.345/CSM I.295). He retained these positions after Descartes’s death, as reflected in his claim in the 1661 edition of *Philosophy of Nature*: “Hence Aristotle once rightly said that the soul of a newly born man is like a blank slate on which nothing has been written, but on which anything can be written” (Regius 1661b: 419).[24] Regius even held in this text that his version of Aristotelian empiricism undermines Descartes’s view of the foundational nature of the *cogito*. Thus he asserts that

> some sense or other is the principle of all knowledge as well as of the remaining mental acts; and hence *Cogito* is not the principle of knowledge or the first thing known; even less *Cogito ergo sum*. There are indeed general notions that have drawn their first origin in some specific sense.
>
> (Regius 1661b: 399)

(p. 443) Insofar as the *cogito* argument is considered to be a foundational principle for Cartesianism, Regius cannot be labeled as a Cartesian.[25] The curious fact remains, however, that he was so labeled even by contemporaries who would have been in a position to know of the criticisms of him by Descartes and other Cartesians.

3. Regius as Cartesian Authority

The Clerselier-Baillet narrative notwithstanding, Regius did not conceive of himself as an anti-Cartesian. Though he certainly had no desire to join Clerselier’s Cartesian campaign, there are indications of a continuing desire on Regius’s part to ally himself with Descartes. Thus Regius appended to the second edition of the *Brief Explanation* two letters that his friend Robert Creighton sent to him from Sweden, in which Creighton reports conversations with Descartes in which he offered praise of Regius.[26] Moreover, Regius included in a later edition of the *Practice of Medicine* (Regius 1668) a prefatory letter—not found in previous editions—in which he emphasizes the influence on him of Descartes’s views in the *Discourse* and appended scientific essays, and also reproduces the passage from the *Letter to Dinet* in which Descartes endorses his views. At least with

respect to issues in physics and medicine, Regius continued to see himself as developing a genuinely Cartesian line.

Regius was not alone in this perception. I have noted that prior to Descartes's denunciation, Schoock had presented Regius as a paradigmatic *Cartesius medicus*. But even after that denunciation, and after the death of Descartes, there were others who presented him in a similar manner. There is such a presentation, for instance, in a "Discourse on the Heart" published in a 1653 English translation of Harvey's *De motu cordis*. This text was the work of the Rotterdam physician James de Back (ca. 1594–1658), who, in the course of a discussion of Descartes's position that the motion of the heart consists in the diastole, refers to the elaboration of that position in the work of "the most learned *H. Regius*, Professor of Physick in the University of *Utrecht*, and a notable follower of *de Cartes*" (Harvey 1653: 114). De Back must have been aware of Descartes's repudiation of his former disciple. However, in this medical context views on issues such as the circulation of blood (which both Descartes and Regius accepted) and the motion of the heart (on which both Descartes and Regius differed from Harvey) are more to the point in determining an ideological connection to Cartesianism than the sort of metaphysical and epistemological issues that separated Descartes from Regius.

(p. 444) The importance of Regius as an authority in Cartesian medicine is also indicated in an anonymous medical textbook from France with the title: *New Course of Medicine. Or, according to the Principles of mechanics explained by Descartes, Hogelande, Regius, Alberius, Villis, the Doctors of Louvain, and by Others* (*Nouveau cours de medecine. Ou, selon les principes de la nature et des mécaniques expliqués par Messieurs Descartes, Hogelande, Regius, Alberius, Villis, les Docteurs de Louvain, et par d'autres*) (1669).[27] This title identifies some of the principal practitioners of Cartesian medicine, including Descartes, of course, but also Van Hogelande, Regius, and the *Doctors of Louvain*, that is, the members of the Louvain Faculty of Medicine whose support of Cartesian medicine prompted an official condemnation of Cartesianism. Of those on this list, Regius and the Leiden physician Cornelis van Hogelande (aka Hoglande; ca. 1590–1662) would be the best candidates for being leading figures in Dutch Cartesian medicine. Van Hogelande was a friend of Descartes, about whom Descartes himself wrote in 1647, after the fallout with Regius:

> He does just the opposite of Regius, in that everything Regius writes is borrowed from me, and yet he manages to contradict my views, whereas everything that Hogelande writes is quite alien to my own views (indeed, I think he has never even read my books properly) and yet he is always on my side, in that he has followed the same principles. (Descartes to Elisabeth, March 1647, AT IV.627/CSMK 315)

In speaking of views of his friend that are "quite alien to my own views", Descartes no doubt has in mind some strange features of Van Hogelande's *Thoughts by which the Existence of God, the Spirituality of the Soul and the Possibility of its Union with Body are Demonstrated* (*Cogitationes quibus Dei existentia, item animæ spiritalitas, et possibilis cum corpore unio, demonstrantur*) (1646). In this text, for instance, Van Hogelande offers

what from Descartes's perspective would be a rather odd argument for the existence of God based on Harvey's theory of circulation (Hogelande 1646: 8–10). However, as its full title shows, Van Hogelande also offers in this text an account of the animal body *mechanice explicatur*.[28] Moreover, in marked contrast to the case of Regius, Van Hogelande explicitly founds this mechanistic physiology on rational demonstrations of the existence of God and the spirituality of the soul. In this way, Van Hogelande did indeed "follow the same principles" as Descartes.[29]

Unfortunately for Descartes, it was Regius rather than Van Hogelande who was the dominant figure in Cartesian medicine. Though the title of the *New Course* mentions both Van Hogelande and Regius, in the text itself Van Hogelande is never cited, whereas the discussion is organized around Regius's medical views.[30] Throughout his long medical (p. 445) career in Utrecht, Regius served as a primary source for a new generation of physicians. Though some of his students—most notably, De Raey—turned against him, Regius nonetheless set the agenda for the Cartesian branch of Dutch medicine. Here again we find evidence of this in the titles of medical texts. There is, for instance, the *Rational Light of Medicine, That is, the Practice of Medicine Reformed, or Annotations to the Practice of Henricus Regius* (*Lumen rationale medicum, hoc est praxis medica reformata, sive annotationes in praxim Henrii Regii*) (1686) of Theodore Craanen (1633–88), a student of Regius, as well as *Amendments to the Medicine … in the Practice of Medicine of Henricus Regius* (*Animadversiones medicae … in Henrici Regii Praxim medicam*) (1695) of Johann Broen (1663–1703), a student of Craanen. There was a network of Cartesian physicians and medical professors who owed their training in mechanistic physiology either directly or indirectly to Regius.

Even Cartesian contemporaries who disagreed with Regius on metaphysical issues nonetheless agreed with him on issues central to Cartesian medicine. A case in point is the French Cartesian physician, Louis de la Forge (1632–66). La Forge was the author of the *Treatise on the Human Mind* (*Traité de l'esprit de l'homme*) (1666), in which he endorses Descartes's claim in the *Comments* that reason can establish that the human mind is an immaterial substance, and thus not a mode of body, and that we have purely intellectual ideas that are independent of the senses (La Forge 1974: 115 and 172). But though there is a clear opposition here to Regius's views, there is also one interesting point of contact between the different versions of Cartesian medicine in La Forge and Regius.[31] In a set of *Remarks* on the *Treatise on Man*, which Clerselier published in 1664, La Forge offers the following defense of Descartes's physiology:

> It is … necessary not to reject the suppositions of M. Descartes because one cannot see them, otherwise it would be necessary likewise to deny that there were animal spirits, that the nerves were hollow as pipes, and a thousand other things that the most scrupulous anatomists have no difficulty in admitting. If one receives their hypotheses, can one deny ours, since they are at least as probable? Because it suffices, to be such, that they explicate clearly the effect for which one searches the cause.

> (Descartes 1664: 217)

There is an admission here that Cartesian physiology involves an ineliminably hypothetical element that depends for its acceptance on the empirical evidence. This stress on the empirical nature of Cartesian medicine is present also in the 1661 edition of Regius's *Philosophy of Nature*, in which it is said that

> we place valves and pores in the muscles and in the fibers in the nerves; because that being posited, one conceives very clearly the way in which natural and voluntary motion is made; in place of which if one denies it, the manner in which these motions are made is absolutely incomprehensible. And it serves nothing to object that all these things are imperceptible to our eyes. Because we posit with reason (p. 446) many things that are invisible, as the animal spirits, the human soul and several others, which nevertheless our reason and our imagination oblige us to admit.
>
> (Regius 1661b: 523)

It would be uncharitable to accuse La Forge of plagiarizing from Regius. Yet the similarities between the two passages do provide some reason to think that La Forge was influenced by what he read in Regius's popular text, in an edition published just a few years prior to La Forge's own *Remarks*. Of course, it cannot be denied that La Forge's robustly dualist version of Cartesian medicine differs fundamentally from a version in Regius that rejects this sort of metaphysics. Nonetheless, there remains significant common ground for the two Cartesian physicians to occupy. This is so with respect to details of mechanist physiology that derive from Descartes, such as the identification of the motion of the heart with the diastole and the view that the pineal gland is a central source of the motion of the animal spirits. However, these passages show that there also is agreement on a probabilistic hypothetical method with respect to the investigation of such details.

4. Reflections on Cartesianism

It is perhaps tempting to think at this point that the question of whether or not one should apply the label 'Cartesian' to Regius is a verbal one of little philosophical importance. However, I think there is a substantive issue here concerning our understanding of Descartes's influence on early modern thought. One can view him as bequeathing a complete and seamless system, acceptance of which is essential for someone to be considered a follower. But another perspective is provided by David Hull's clever and instructive attempt to understand the nature of the conceptual system *Darwinism* in terms of a Darwinian analysis of biological species. According to this analysis, there is no expectation that there will be a set of phenotypic traits that all and only members of a particular biological species possess throughout time. A species is rather a population likely to be marked by considerable phenotypic plasticity. What unites the diverse members of a species is a par-

ticular historical origin and line of descent. It is similarly the case, Hull claims, with respect to Darwinism as a conceptual entity (Hull 1985).[32]

We know that the unification of a biological species depends crucially on reproductive isolation. Hull suggests that social considerations could play an analogous role in unifying different versions of a conceptual system. As Hull documents, Darwin was part of a social network that continued to develop after his death. This network can itself be conceived as a kind of "continuously developing historical entity" that retains its unity despite the presence of sometimes substantial disagreements among the individuals who constitute it (Hull 1985: 805). What serves to make one a Darwinian is not so much an agreement with some privileged set of Darwin's views as a sense that one is engaging (p. 447) in a research program that is continuous with Darwin's own work. Hull cites in this connection the claim of Michael Ruse that a Darwinian is "someone who identifies with Darwin, but not necessarily someone who accepted all of Darwin's ideas" (Ruse 1979: 203, cited in Hull 1985: 800).

The case of Regius shows us that there were different and in some sense competing social networks connecting the works of later early modern thinkers to those of Descartes. Even when we restrict our consideration just to Dutch followers, we see that there was a Cartesian group, including Andreae and De Raey, that excluded Regius. For this group, it was of central importance to support a Cartesian metaphysics that includes arguments for the existence of God and the immateriality of the human mind.[33] Yet Regius was at the head of another Dutch Cartesian network that focused rather on issues concerning mechanistic physiology. With respect to these issues, a concern with a theological and dualistic metaphysics was at best of no importance and at worst a hindrance to the work of defending Cartesian medicine against its various competitors. Better to leave metaphysics to the theologians and to get on with the empirical business of examining particular hypotheses concerning the operations of the human body. Certainly this sort of attitude might not seem very Cartesian to us, accustomed as we are to viewing Descartes's *Meditations* as a centerpiece of Cartesianism. Yet Regius reveals that Descartes's views could be, and more to the point, were in fact, taken in a very different direction. Rienk Vermij (2012: 185) has claimed recently that a study of Newtonianism should be based not "on our own preconceptions of the 'real' content or signficance of Newton's ideas", but rather on "how far and why people at the time admired Newton, and what they felt his ideas meant, or should mean". Substitute 'Cartesianism' for 'Newtonianism' and 'Descartes' for 'Newton', and I think we have the main lesson that the curious case of Regius has to teach us.

References

Alexandru, Vlad (2013), "Regius and Gassendi on the Human Soul", *Intellectual History Review* 23: 1–20.

Andreae, Tobias (1653), *Brevis replicatio reposita Brevi explicationi mentis humanae Henrii Regii*. Amsterdam: L. Elzevier.

Ariew, Roger, Dennis Des Chene, Douglas M. Jesseph, Tad M. Schmaltz, and Theo Verbeek, eds. (2015), *Historical Dictionary of Descartes and Cartesian Philosophy*, 2nd edition. New York: Rowman & Littlefield.

Baillet, Adrien (1970), *La vie de monsieur Descartes*, 2 vols in 1. Geneva: Slatkin. [Originally published anonymously in 1691 with a letter of dedication from "A. B."]

Bellis, Delphine (2013), "Empiricism Without Metaphysics: Regius' Cartesian Natural Philosophy", in Mihnea Dobre and Tammy Nyden (eds.), *Cartesian Empiricisms*. Dordrecht: Springer, 151–83.

(p. 448) Bitbol-Hespériès, Annie (1993), "Descartes et Regius: leur pensée médicale", in Theo Verbeek (ed.), *Descartes et Regius: Autour de l'Explication de l'esprit humain*. Amsterdam: Rodolpi, 47–68.

Bos, Erik-Jan (2013), "Henricus Regius et les limites de la philosophie cartésienne", in Delphine Kolesnik-Antoine (ed.), *Qu'est-ce qu'être carteesien?* Lyon: ENS Éditions, 53–68.

Broen, Johann (1695), *Animadversiones medicae, theoretico practicae in Henrici Regii Praxim medicam*. Leiden: C. Boutestein.

Craanen, Theodore (1686), *Lumen rationale medicum, hoc est praxis medica reformata, sive annotations in praxim Henrii Regii*. Middleburg: Johannem de Reede.

Des Chene, Dennis (1995), "Cartesiomania: Early Receptions of Descartes", *Perspectives on Science* 3: 534–81.

Descartes, René (1664), *L'Homme de René Descartes, et un Traitté de la formation du foetus, du mesme auteur. Avec les Remarques de Louis de la Forge, docteur en medecine*. Paris: Angot.

Descartes, René, and Henricus Regius (2002), *The Correspondence between Descartes and Henricus Regius*, ed. J. J. F. M. Bos. Utrecht: Utrecht Department of Philosophy.

Descartes, René, and Martin Schoock (1988), *La Querelle d'Utrecht*, trans. and ed. Theo Verbeek. Paris: Les impressions nouvelles.

Douglas, Alexander (2015), *Spinoza and Dutch Cartesianism: Philosophy and Theology*. Oxford: Oxford University Press.

Fabricius, Carolus (1648), *De Antidoto Primirosiano Epistola, Secunda editio, Priori auctior et emendatior*. Rotterdam: Isaci.

Farina, Paolo (1975), "Sulla formazione scientifica di H. Regius: Santorio e il 'De statica medicina' ", *Rivista Critica de Storia della Filosofia* 33: 363–99.

Gariepy, Thomas P. (1991), "Mechanism without Metaphysics: Henricus Regius and the Establishment of Cartesian Medicine". PhD dissertation, Yale University, New Haven, CT.

Grant, Edward (1987), “Ways to Interpret the Terms ‘Aristotelian’ and ‘Aristotelianism’ in Medieval and Renaissance Natural Philosophy”, *History of Science* 25: 335–58.

Hallyn, Ferdinand (2006), “La Philosophia naturalis de Regius et l’écriture athée”, in Antony McKenna, Pierre-François Moreau, and Frédéric Tinguely (eds.), *Les libertines et la science*. Saint-Étienne: University of Saint-Étienne, 37–46.

Harvey, William (1653), *The anatomical exercises of Dr. William Harvey professor of physick, and physician to the Kings Majesty, concerning the motion of the heart and blood. … To which is added Dr. James De Back his Discourse of the heart, physician in ordinary to the town of Roterdam*. London: Leach.

Hogelande, Cornelis van (1646), *Cogitationes quibus Dei existential; item animae spiritalitas, et possibilis cum corpore unio, demonstratur: nec non, brevis historia oeconomiae corporis animalis, proponitur, atque mechanice explicatur*. Amsterdam: L. Elzevier.

Hull, David (1985), “Darwinism as a Historical Entity: A Historiographic Proposal”, in David Kohn (ed.), *The Darwin Heritage*. Princeton, NJ: Princeton University Press, 773–812.

Kolesnik-Antoine, Delphine (2013), “Le role des experiences dans la physiologie d’Henricus Regius: les ‘pierres lydiennes’ du cartésianisme”, *Journal of Early Modern Studies* 1: 125–45.

La Forge, Louis de (1974), *Œuvres philosophique, avec une etude bio-bibliographique*, ed. Pierre Clair. Paris: Presses Universitaires de France.

McGahagan, Thomas A. (1976), “Cartesianism in the Netherlands, 1639–1676: The New Science and the Calvinist Counter-Reformation”. PhD dissertation, University of Pennsylvania, Philadelphia.

Nolan, Lawrence, ed. (2016), *The Cambridge Descartes Lexicon*. Cambridge: Cambridge University Press.

(p. 449) Raey, Jonannes de (1692), *Cogita de interpretatione*. Amsterdam: Wetstein.

Regius, Henricus (1641a), *Physiologia, sive Cognitio sanitatis: tribus disputationibus in Academia Ultrajectina publice proposita*. Utrecht: Aeg. Roman.

Regius, Henricus (1641b), *De illustribus aliquot questionibus physiologicis*. Utrecht: Aeg. Roman.

Regius, Henricus (1646), *Fundamenta physices*. Amsterdam: A. Elzevier.

Regius, Henricus (1647), *Medicatio viri cachexia leucophlegmatica affecti* [Resp. Petrus Wassenaer]. Utrecht: Trajecti ad Rhenum.

Regius, Henricus (1648), *Brevis explicatio mentis humanae, sive, Animae rationis … a Notis Nobil. Cartesii vindicata* [with letter to Descartes from Petrus Wassenaer]. Utrecht: Trajecti ad Rhenum.

Regius, Henricus (1654), *Philosophia naturalis*, 2nd edition [of *Fundamenta physices*]. Amsterdam: L. & D. Elzevier.

Regius, Henricus (1657a), *Brevis explicatio mentis humanae* [with preface from "Carolus Fabricius"], 2nd edition. Utrecht: Trajecti ad Rhenum.

Regius, Henricus (1657b), *Medicina, et praxis medica, medicationum exemplis demonstrata*. Utrecht: Trajecti ad Rhenum.

Regius, Henricus (1661a), *Epistola Henrici Regii ad V. Cl. Clerselierum JCtum Parisiensem* [with preface from "Carolus Fabricius"]. Utrecht: Trajecti ad Rhenum.

Regius, Henricus (1661b), *Philosophia naturalis*, 3rd edition [of *Fundamenta physices*]. Amsterdam: L. & D. Elzevier.

Regius, Henricus (1668), *Medicina, et praxis medica, medicationum exemplis demonstrata*, 3rd edition. Utrecht: Trajecti ad Rhenum.

Rothschuh, Karl (1968), "Henricus Regius und Descartes: Neue Einblicke in die frühe Physiologie (1640–1641) des Regius", *Archiv International d'Histoire de Science* 21: 39–66.

[Rouvière, Henri?] (1669), *Nouveau cours de medecine, ou, selon les principes de la Nature et des Mécaniques, expliqués par Messierus Descartes, Hogelande, Regius, Arberius, Villis, des Docteurs de Louvain, & par d'autres: on aprend le cors de l'homme, avec les moiens de conserver la santé et de chasser les maladies*. Paris: Clouzier & Auboruyn.

Ruse, Michael (1979), *The Darwinian Revolution*. Chicago: University of Chicago Press.

Schmaltz, Tad M. (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. Oxford: Oxford University Press.

Schoock[ius], Martin[us] (1643), *Admiranda methodus novae philosophiae Renati des Cartes*. Utrecht: J. van Waesberge.

Sloan, Philip (1977), "Descartes, the Sceptics, and the Rejection of Vitalism in Seventeenth-Century Physiology", *Studies in History and Philosophy of Science* 8: 1–28.

Verbeek, Theo (1992), *Descartes and the Dutch: Early Reactions to the Cartesian Philosophy, 1637–1650*. Carbondale: Southern Illinois University Press.

Verbeek, Theo, ed. (1993), *Descartes et Regius: Autour de l'Explication de l'esprit humain*. Amsterdam: Rodolpi.

Verbeek, Theo (1994), “Regius’s *Fundamenta physices*”, *Journal of the History of Ideas* 55: 533–51.

Vermij, Rienk (2012), “Defending the Supernatural: The Dutch Newtonians, the Bible and the Laws of Nature”, in Erik Jorink and Ad Maas (eds.), *Newton and the Netherlands: How Isaac Newton was Fashioned in the Dutch Republic*. Amsterdam: Leiden University Press, 185–206.

Notes:

([1]) I owe the biographical details to entries on Regius by Theo Verbeek in Ariew et al. 2015: 280–3, and Nolan 2016: 641–4.

([2]) §§1–3 and §4 are based on the more extensive discussion of these issues in Schmaltz 2017: §5.2 and 5–11, respectively.

([3]) On Sanctorius’s approach in medicine and its influence on Regius, see Farina 1975.

([4]) In fact, Descartes did have a friend at Utrecht, namely, Henri Reneri, who introduced Regius to Descartes’s work. Presumably, Descartes did not want this fact to spoil the joke that he was being thanked for his efforts at a university where he had no connections.

([5]) For more on the history of Regius’s decision, see Verbeek 1994: 538–42.

([6]) For the text of the *Physiology*, see Descartes and Regius 2002: 197–248, which highlights changes in the text due to Descartes’s corrections. For further discussion of the content of the *Physiology*, see Rothschuh 1968; Gariepy 1991: ch. 4; and Bitbol-Hespériès 1993.

([7]) For the text of Regius’s disputations, see Descartes and Regius 2002: 195–248.

([8]) In the latter case, Voetius held that the view that the body is an essential aspect of the human being, rather than something accidental to it, is required to justify the need for the resurrection of the body after death.

([9]) On “the Utrecht crisis” and its immediate aftermath, see Verbeek 1992: ch. 2; see also the discussion of the philosophical issues involved in this crisis in Des Chene 1995: 537–60.

([10]) In this letter, Descartes assumed that the true author of the *Admirable Method* was Voetius rather than Schoock.

([11]) The reference here is to Adriaan Heereboord (1613–61). Descartes’s remarks notwithstanding, I argue in Schmaltz 2017 that Heereboord was more concerned to reform scholastic philosophy that to push a Cartesian program (72–3). For the contrasting view of Heereboord as a Cartesian, see Verbeek 1992: 36.

([12]) See, for instance, Hallyn 2006: 173–201.

([13]) Here following Bos 2013: 59.

([14]) That this is the reference is clear from Descartes remark in a 1646 letter that “it is now twelve or thirteen years since I described all the functions of the human or animal body” in the work in question (Descartes to Mersenne, November 23, 1646, AT IV.566–7/ CSMK 301).

([15]) Descartes to Mersenne, November 23, 1646, AT IV.567/CSMK 302. This account of the muscles also receives special attention both in Clerselier’s preface to his edition of the *Treatise on Man*, and in La Forge’s *Remarks* included in this edition.

([16]) For a defense of Regius against the charge of plagiarism, see Rothschuh 1968: 61–6, and Verbeek 1994: 542–3.

([17]) Regius takes his experimental work to show that some portion of the animal spirits sent to the muscles reach the heart by means of venules and then are returned to the brain through arteries.

([18]) Included as part of Regius 1647, and later published in Regius 1657a.

([19]) I am drawing here on the discussion in the editorial introduction to Verbeek 1993: 1–3.

([20]) See Descartes summary of the *Explanation* in the *Comments*, AT VIIIB.342–6/CSM I. 294–6. Regius included the suppressed claims in the 1654 and 1661 editions of his *Philosophy of Nature*.

([21]) On the break between Regius and Descartes, cf. Verbeek 1992: ch. 4.

([22]) We do have one work from Fabricius, namely, Fabricius 1648, a defense of Regius against the attacks of James Primrose, an English critic of Regius’s support for Harvey’s theory of blood circulation.

([23]) More precisely, Baillet states that Regius was the first disciple, after Reneri. On Reneri, see note 4.

([24]) On the empiricist elements of Regius’s system, see Bellis 2013.

([25]) Indeed, there is the suggestion in Alexandru 2013 that these features of Regius’s system render it Gassendist rather than Cartesian.

([26]) Moreover, Fabricius ends his preface to this edition with the following: “Now there is perpetual peace, between/The famous Descartes and Regius/And the barking of ferocious dogs/All that is not worth a penny” (Regius 1657a: 10). One can guess that the barking dogs here would be Clerselier and his minions.

([27]) The work is sometimes attributed to Louis Henry de Rouvière (d. 1712?), though this attribution has been challenged (as indicated in Gariepy 1991: 253, n. 1).

([28]) The full title: *Cogitationes quibus Dei existential; item animae spiritalitas, et possibilis cum corpore unio, demonstratur: nec non, brevis historia oeconomiae corporis animalis, proponitur, atque mechanice explicatur*.

([29]) See the discussion of Van Hogelande and his relation to Descartes in Sloan 1977: 20–2.

([30]) In this text, for instance, there is a particular emphasis on five mechanistic principles drawn from Regius that are reflected in the work of the “Doctors of Louvain”; see [Rouvière?] 1669: 15–7. On the role of Regius’s views in the *Nouveau cours*, see Gariepy 1991: 253–74.

([31]) Here I am following the discussion in Kolesnik-Antoine 2013, 142–4.

([32]) For the application of Hull’s discussion of Darwinism to the case of pre-modern Aristotelianism, see Grant 1987.

([33]) On this Dutch Cartesian network, see Verbeek 1992: 70–7; cf. Douglas 2015. This network is also linked by a common concern to distinguish a properly Cartesian metaphysics from the heterodox metaphysics of Spinoza.

Tad M. Schmaltz

Tad Schmaltz is Professor of Philosophy and James B. and Grace J. Nelson Fellow at the University of Michigan, Ann Arbor. His areas of specialization are the history of early modern philosophy, the history and philosophy of early modern science, and the relations among philosophy, science and theology in the early modern period. He has as special interests the variety of early modern "Cartesianisms"; the influence of late scholasticism on early modern thought; the nature of the "Scientific Revolution"; and early modern versions of substance-mode metaphysics, theories of mereology, and views of causation and freedom.

Geulincx and the *Quod Nescis* Principle: A Conservative Revolution

Andrea Sangiocomo

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Abstract and Keywords

Geulincx is known as one of the first early modern defenders of occasionalism—the doctrine according to which God is the only cause of natural phenomena, while finite beings are merely "occasional causes" for God's intervention. Although Geulincx has been portrayed as a Cartesian occasionalist, this chapter argues that Geulincx's occasionalism does not arise from Descartes's philosophy, but rather he exploits some central tenets of Descartes's metaphysics in order to develop his own philosophical and theological agenda. The chapter suggests that the argumentative strategy Geulincx uses to develop his occasionalism is shaped by theological concerns and addresses problems left unresolved in the later Scholastic and Renaissance natural philosophy, which were made more urgent by the Calvinist account of God's special providence.

Keywords: Arnold Geulincx, occasionalism, quod nescis, Calvinism, special providence

(p. 450) 1. Introduction

ARNOLD Geulincx (1624–69) was born and initially educated in Antwerp. In 1640, Geulincx began his studies at Leuven University. After obtaining his licentiate in 1643, Geulincx enrolled in the theology faculty and in 1646 he became junior professor of philosophy.[1] Geulincx's academic career at Leuven was interrupted at the beginning of 1658. While the exact causes remain unclear, it seems that Geulincx violated the rule of celibacy for professors. Geulincx moved to Leiden, where he graduated in medicine and, near the end of the same year, married his niece Susanna Strickers. At Leiden, Geulincx found an important supporter in Abraham Heidanus (1597–1678), a prominent Calvinist theologian who was also interested in the new philosophy of Descartes. In 1662, Geulincx was appointed lecturer in logic and metaphysics at Leiden, and in 1665 he was appointed professor of philosophy. Although he was also teaching ethics, he only obtained a formal appointment to teach moral philosophy in 1667. Geulincx's career was abruptly terminated

in the autumn of 1669, when he died of the plague that afflicted the Dutch Republic and also killed a number of Geulincx's Leiden colleagues.

Today, Geulincx is known as one of the first early modern defenders of occasionalism, namely, the doctrine according to which God is the only cause of natural phenomena, (p. 451) while finite beings are merely "occasional causes" for God's intervention (Perler and Rudolph 2000; Clarke 2000; Nadler 2010: 29–47). Geulincx's occasionalism is particularly radical, since it concerns both bodies and minds. Although Descartes's own relationship with occasionalism is controversial (Platt 2011), most of the seventeenth-century supporters of occasionalism are broadly presented as "Cartesians". As a result, occasionalism too is often understood as somehow derived from or supported by Descartes's philosophy and Geulincx has been portrayed as a Cartesian occasionalist (De Lattre 1967; Cooney 1978; Bardout 2002).

In this chapter I argue that Geulincx's occasionalism does not arise from Descartes's philosophy. Rather Geulincx exploits some central tenets of Descartes's metaphysics in order to develop his own philosophical and theological agenda. More precisely, I argue that the argumentative strategy that Geulincx uses to develop his occasionalism is shaped by theological concerns and addresses problems left unresolved in the later Scholastic and Renaissance natural philosophy, which were made more urgent by the Calvinist account of God's providence.[2]

Geulincx's case is particularly interesting for two main reasons. First, it provides further evidence for a recent trend in today's scholarship asserting that occasionalism was *not* a homogenous philosophical project, but that different occasionalist authors pursued distinct arguments and exploited various Cartesian tenets, sometimes endorsing positions that Descartes himself rejected (Schmaltz 2017: 165–227; Platt 2017). Second, Geulincx's case sheds light on the underpinning reasons and historical dynamics that led to the acceptance and dissemination of new views, such as those defended by Descartes. While Descartes's philosophy is often understood as a frontal attack on the Scholastics, Geulincx saw in it a resource to preserve certain tenets embedded in the previous tradition and rework them to support Calvinism. In this sense, Geulincx's Cartesianism is an example of the conservative drive that underpinned the acceptance and spreading of allegedly revolutionary ideas during the seventeenth century.

In section 2, I present the cornerstone of Geulincx's philosophy, namely, the principle according to which "who does not know how to produce an effect, is not the cause of that effect" (*quod nescis quomodo fiat, id non facis*—hereafter *quod nescis*). In section 3, I show how the Calvinist account of God's providence made the reference to the *quod nescis* principle a particularly sensible topic, especially from the point of view of the sixteenth- and seventeenth-century philosophical background. In section 4, I conclude by illustrating how the endorsement of Descartes's metaphysics allowed Geulincx to rework the *quod nescis* by defusing its theological threats and exploiting it as a resource to support the Calvinist project.

(p. 452) 2. The *Quod Nescis* Principle in Geulincx's Philosophy

The *quod nescis* principle has crucial implementations in several of the major developments of Geulincx's philosophy, namely, natural philosophy, ethics, and metaphysics. In this section I offer a chronological reconstruction of the growing emphasis that Geulincx places on this principle across his works.

The first appearance of the *quod nescis* principle emerges in a series of physical disputations that Geulincx published in 1663. These physical disputations are broadly Cartesian in content. They argue for a number of distinctly Cartesian claims, such as the identification of extension as the essence of bodies and the rejection of a void (first disputation); the account of natural phenomena in terms of movement understood as translation from place to place (second disputation); and the positive nature of the force of rest (third disputation). In the third disputation, Geulincx discusses the reason why God must be considered the sole cause of motion.

Geulincx's main argument runs as follows. A body cannot move unless all other parts of the material world move as well (since the whole material world is a plenum). In order to move any particular body or material part, an infinite force is necessary to overcome the force of rest of the infinitely many other parts that need to be moved as well. Bodies do not have any intrinsic force of motion since their nature consists in nothing but extension (Geulincx 1891–3: 501). Since in nature there is nothing but minds and bodies, if the cause of motion cannot be located in a body it must be a mind; but only an infinite mind can have an infinite force of motion. Hence, the sole cause of motion is God's will (Geulincx 1891–3: II.502).[3]

Geulincx argues that the way in which God moves bodies is hardly understandable by us, even "ineffable", because "we do not produce motion but we just find motion in the world" (Geulincx 1891–3: II.502). Since our will does not really cause motion, we cannot understand what it means for God to produce motion at will.

This point is puzzling at first, and Geulincx is well aware of this. In fact, he continues:

> But what? Are you saying that we do not move our feet when we walk? Don't we move our tongue when we speak? We do not move, I say. In fact, for the most part we do not know in which way we move, and how can you say that you do something when you do not know how to do it? […] You know only this, that some of the limbs of your body are moved when you want that (namely in case that impediments, relaxation and sickness are removed). But from this it does not follow at all that these limbs are moved by you.
>
> (Geulincx 1891–3: II.502–3)[4]

(p. 453) The *quod nescis* principle postulates that some relevant knowledge is required for an agent to bring about an action. The principle also calls for an empirical inspection of the actual knowledge that we have concerning our own voluntary movements. Since experience makes clear that we produce most of our voluntary movements without actually knowing how to move the different parts of our bodies (and, in fact, without detailed knowledge of the anatomical parts of our bodies), it follows that our minds lack the relevant knowledge to be the proper cause of these movements. Hence, our minds do not cause these movements.

In the third physical disputation the *quod nescis* principle is used to support the broader claim that we cannot understand the way in which God moves the material world. In this context *quod nescis* rules out the possibility that finite human minds could be considered the cause of motions in nature. Geulincx does not explicitly draw any more general conclusion from the principle, and he even remains silent on whether bodies could at least communicate motion once they received it from God or other bodies. In the third disputation Geulincx injects the *quod nescis* principle into the Cartesian physical framework with a sort of *ex machina* effect, and he does not further exploit it to draw any conclusion about causal interactions among bodies.

In 1665, Geulincx publishes the *First Treatise* of his *Ethics*. In this work he integrates the *quod nescis* principle in his ethical system and makes this principle the cornerstone of his moral doctrine. Given the limited space in this chapter, let me draw attention to two main aspects of Geulincx's *First Treatise*.[5]

First, Geulincx programmatically announces that the study of virtue is "the pinnacle of the Temple of Wisdom" and that ethics is the "roof" of the whole edifice of philosophy (Geulincx 2006: 4). There is no reason for not taking seriously this affirmation, which entails, in turn, that Geulincx's programmatic goal is to support and articulate certain ethical views. Geulincx's ethics has a distinctive religious and Calvinist flavor, insofar as it is strongly based on the idea that the only ethically adequate conduct for human beings is the one based on the virtue of *humility* and on a complete submission to God (Nicusanti 2010; Sangiacomo 2014a).

Second, Geulincx's argument to support his ethics of humility rests on the *quod nescis* principle. As he writes:

> [I]t is perfectly evident, and nothing can be thought more clearly than that what I do not know how to do is not my action. Nor is there any need for arguments here, only anyone's consciousness […] I say, therefore, that if you are willing to describe yourself as the doer of anything that you do not know how to do, there is no reason why you should not believe that you have done or do anything that happens or has been done. If you do not know how motion is made in the organs of your body while being nevertheless quite sure that you made it, you could say with equal justification that you are the author of Homer's *Iliad* […] Why are these not your ac-

> tions, why (p. 454) are you conscious that they are not your actions, if not because you do not know how to do them?
>
> (Geulincx 2006: 225)

In the annotations to the *First Treatise*, Geulincx presents the *quod nescis* principle as an "axiom" and extends its validity to all natural beings. As he writes:

> [N]othing could obscure from us the truth of the axiom that I have just stated, if we did not labor under the prejudice that we acquired in infancy, and which the various Schools of Philosophy have confirmed and solidified. I mean, our conviction that natural things act without knowing what they do and how they do it: for example, that the Sun illuminates we interpret as making light […] But this is just our blatant stupidity. Since we readily concede that those things we do not know how to do are beyond our power (except in that one case of the motion of our organs), *it is remarkable that we do not apply the same argument to these brute things*. However, those who have been initiated into true philosophy have learned with complete conviction that it is not the Sun that makes light, nor fire that makes heat, nor heavy bodies that cause their own descent, but that *it is a Mover who produces all these things locally and without an intermediary*, by impressing various motions on this or that part of matter, and with these different motions and without anything else intervening forms those various bodies (the sun, fire, stones, etc.) and produces that great variety of effects for our senses, using both these motions and the various parts of matter on which He impresses them as if they were His instruments.
>
> (Geulincx 2006: 226; emphasis added)

This annotation is remarkable since it shows how the validity of the *quod nescis* principle extends from the domain of introspection and human actions (which is the main context of the *First Treatise*) to a broader metaphysical consideration of the general lack of knowledge (and thus of causal powers) in natural created beings, including natural bodies. In this context, *quod nescis* is no longer a side argument used to support a more general point (as was the case in the third physical disputation), but it reveals its universal validity.

The growing centrality of the *quod nescis* principle reaches its peak in the *Metaphysics*, which Geulincx arguably completed around 1666 (de Vleeschauwer 1958: 609) though it was published only posthumously in 1691. In this work, Geulincx again presents *quod nescis* as a self-evident axiom and extends its validity to all finite beings (Geulincx 1999: 34–5). He also stresses how the principle leads to the understanding that the human condition is not that of a real agent in the world, but merely that of a spectator completely subordinated to God's own will (Geulincx 1999: 44).

In the *Metaphysics*, the *quod nescis* principle first appears in the context of a rather Cartesian discussion that follows the order of Descartes's *Meditations*. Geulincx moves

from the doubt of acquired prejudices (Geulincx 1999: 21–6) to the discovery of the *cogito* as the ground for any certainty (Geulincx 1999: 31). He goes on to argue that the thinking subject possesses some modes of thought (i.e. ideas) that cannot be produced by the subject itself but must arise from some external object.[6] This point apparently (p. 455) echoes Descartes's discussion in the Sixth Meditation about why bodily sensations provide an argument for the existence of an extended world external to the meditator (AT VII.78–9/ CSM II.54–5). In that context, Descartes argued:

> Now there is in me a passive faculty of sensory perception, that is, a faculty for receiving and recognizing the ideas of sensible objects; but I could not make use of it unless there was also an active faculty, either in me or in something else, which produced or brought about these ideas. But this faculty cannot be in me, since clearly it presupposes no intellectual act on my part, and the ideas in question are produced without my cooperation and often even against my will. So the only alternative is that it is in another substance distinct from me—a substance which contains either formally or eminently all the reality which exists objectively in the ideas produced by this faculty (as I have just noted). This substance is either a body, that is, a corporeal nature, in which case it will contain formally <and in fact> everything which is to be found objectively <or representatively> in the ideas; or else it is God, or some creature more noble than a body, in which case it will contain eminently whatever is to be found in the ideas. *But since God is not a deceiver, it is quite clear that he does not transmit the ideas to me either directly from himself*, or indirectly, via some creature which contains the objective reality of the ideas not formally but only eminently. For God has given me no faculty at all for recognizing any such source for these ideas; on the contrary, he has given me a great propensity to believe that they are produced by corporeal things. So *I do not see how God could be understood to be anything but a deceiver if the ideas were transmitted from a source other than corporeal things*. (AT VII.79–80/CSM II.55; emphasis added)

It is interesting to note that in reworking this passage, Geulincx accepts the argument according to which the passive nature of sensory perception entails that the cause of sensation must be outside the thinking subject. However, Geulincx impresses a distinctly occasionalist twist in the Cartesian argument by introducing two connected points: 1) perceptions must be aroused in the subject by an agent capable of cognizing and being aware of them because this agent "cannot make them happen unless it knows how" (Geulincx 1999: 35); and 2) God, who is the active agent who arouses the sensory perceptions in the human mind, operates by using the human body as a means; yet "a body has no capacity to arouse thoughts" (Geulincx 1999: 37) and it works only as a causally passive instrument of God's will. Point 1) injects the *quod nescis* principle into the otherwise Cartesian framework of Geulincx's discussion, while point 2) introduces an occasionalist interpretation of Descartes's claim that a veracious God cannot directly or indirectly (i.e. by using some medium) cause sensations. In Geulincx's account the human body *is* God's means of causing sensory perceptions in the human mind (Geulincx 1999: 41). Descartes's text does not preclude that bodies are causally efficacious in bringing about sensory percep-

tions in the human mind. In fact, Descartes introduces this possibility by referring to “an active faculty […] which produced or brought about these ideas” (AT VII.79/CSM II.55). However, Geulincx’s reconstruction rules out this option.

As is well known, Descartes’s account of mind–body interactions constitutes one of the most problematic points of his philosophy. Scholars have often presented occasionalism as a solution to this problem. Geulincx’s treatment of this issue in his *Metaphysics* seems (p. 456) to confirm this point. However, for present purposes, it is also interesting to stress how the occasionalist solution of the mind–body problem is rather a conceptual by-product of the injection of the *quod nescis* principle into the Cartesian framework. The philosophical importance of this principle in Geulincx’s system is not limited to addressing the specific issue of mind–body interactions. In the second part of the work, Geulincx again presents a Cartesian account of the physical world in which he demonstrates explicitly that “a body cannot derive motion from itself” (Geulincx 1999: 76). To support this point, Geulincx notes:

> The Proposition also follows from the principle […] that what one does not know how to do, is not one’s action. Body, as an irrational thing, does not know how to cause motion; therefore, the cause of its motion cannot be within itself; and this is the same as saying that it cannot derive motion from itself.
>
> (Geulincx 1999: 77)

In this syllogism, the minor premise (“Body, as an irrational thing, does not know how to cause motion”) is based on the Cartesian distinction between non-thinking extended beings and thinking non-extended beings. Thanks to this distinction, Geulincx can generalize the implications of the *quod nescis* principle to all extended things, including the human body. In this context, it becomes also explicit that bodies are neither able to cause motion in the first place nor to communicate motion to other bodies. If every action requires knowledge of how to perform it (because of *quod nescis*) then a purely extended body, which cannot know anything at all, cannot be the cause of any action whatsoever.

Nonetheless, Geulincx’s harmonization of *quod nescis* in the Cartesian framework was not an obvious move at all. Geulincx was arguably aware that Descartes did not support the *quod nescis* principle. In his *Physica Vera*, Geulincx offers a rather faithful presentation of the physics defended by Descartes in the *Principles of Philosophy*. In this text Geulincx actually rejects *quod nescis* (Geulincx 1891–3: II.443) by following a line of thought analogous to the one that Descartes used to reject that same principle when Arnauld pressed this point (Kolesnik-Antoine 2006; Scribano 2011). Hence, it is far from obvious that, in a Cartesian framework, the *quod nescis* principle looks evident at all. The reasons for the evidence that Geulincx attributes to the principle must be sought elsewhere. This reconstruction of Geulincx’s endorsement and use of the *quod nescis* principle thus raises two questions. First, why does Geulincx consider the principle so evident and even take it as an axiom? Second, why does Geulincx try to harmonize the *quod nescis* principle in a Cartesian framework while Descartes explicitly rejected the principle?

3. Calvinist Providence and *Quod Nescis*

In a series of recent contributions, Emanuela Scribano (2011, 2018) reconstructs the historical genealogy of the *quod nescis* principle from its ancient and medieval sources to Malebranche. Scribano convincingly traces the origin of the *quod nescis* to (p. 457) Galen's *De Foetus Formatione* and demonstrates how Scholastic and Renaissance authors commonly discussed the idea that an agent's action requires some form of cognition on the agent's side in order to perform that action.[7] In this section I would like to build on Scribano's contributions and investigate in more detail why Geulincx considers *quod nescis* a particularly important principle for developing a philosophical defense of the Calvinist account of God's providence. This perspective sheds some important light on Geulincx's appropriation and reworking of Descartes's metaphysics.

A central concern for Calvinist theology is to establish a robust account of God's providence and defend its pervasive ruling presence everywhere in the created world (Reardon 1975; Schreiner 1991; Kirby 2003). Calvin himself is vocal about the need to defend not only God's *general* providence (by means of which God is responsible, as the primary cause, for all events occurring in the created world), but also God's *special* providence (by means of which God is directly responsible for determining any particular event). As Calvin explains:

> [W]e make God the ruler and governor of all things, who in accordance with his wisdom has from the farthest limit of eternity decreed what he was going to do, and now by his might carries out what he has decreed. From this we declare that not only heaven and earth and the inanimate creatures, but also the plans and intentions of men, are so governed by his providence that they are borne by it straight to their appointed end.
>
> (Calvin 1960: I.16, 207)

This claim is germane to Calvin's insistence on the necessity for human beings to submit to God's power as the "clay in the potter's hands". In commenting on the occurrence of this expression in Jeremiah 18:6, Calvin writes:

> God can turn us here and there, and change us at his will. Then how foolishly do men trust in their present good fortune; for in a single moment their condition can be altered, as there is nothing certain on the earth.
>
> (Calvin 1950: II.419)

The immediate consequence of Calvin's view is that the human condition is so dependent on God's providential plan that only a complete submission to God's will can be appropriate and wise moral conduct. In this respect, Geulincx's ethics of humility mentioned in the previous section echoes this Calvinist concern.

Nonetheless, Calvin's account of providence applies not only to human beings, but to all natural beings and events, in general. As Calvin writes:

> [A]ll events are governed by God's secret plan. And concerning inanimate objects we ought to hold that, although each one has by nature been endowed with its own property, yet it does not exercise its own power except in so far as it is directed by God's ever-present hand. These are, thus, nothing but instruments to which God (p. 458) continually imparts as much effectiveness as he wills, and according to his own purpose bends and turns them to either one action or another. No creature has a force more wondrous or glorious.
>
> (Calvin 1960: I.16, 199)

Calvin's view is at odds with the idea that creatures have some form of causal or ontological autonomy that allows them to operate (to some extent) beyond and above God's providential guidance. To put it in more metaphorical terms, Calvin rejects the idea that the "clay" can take any form by itself or do anything apart from what the "potter" imposes on it. For instance, Calvin rejects the idea (attributed to the "carnal sense") that "there is an energy divinely bestowed from the beginning, sufficient to sustain all things" (Calvin 1960: I.16, 197). In short, Calvin's agenda consists in advocating a strong account of God's special providence. Let me present a brief historical sketch to show the urgency that, by the end of the sixteenth century, this agenda might have had for Calvin.

The *quod nescis* principle states that an agent can produce an effect if and only if that agent knows how to produce it. The principle is a specification of a broader principle, according to which causal agency requires some form of knowledge (and *quod nescis* specifies that it is necessary for the agent to know the means of producing the effect). Let me call this broader principle the *cognition condition* on causation. In Scholastic debates the cognition condition is usually introduced in connection with *final* causation, insofar as acting for the sake of an end seems to require knowledge of this end. This cognition condition is absent in Aristotle's account of causation (Pasnau 2001; Quarantotto 2005), and it is problematic to see whether Aquinas is fully consistent in endorsing it (Schmid 2011; Sangiacomo 2016a). However, the cognition condition was widely accepted in late Scholastic thought (Des Chene 1996: 194–200; Sangiacomo 2018a). It is worth recalling that in the Scholastic account of causation, final and efficient causation are closely related. Efficient causes are determined to operate by final causes, without which the efficient cause would not act (Penner 2015). This entails that while the cognition condition might refer more directly to final causation, its consequences involve efficient causation as well. If an agent fails to meet the cognition condition, it cannot properly operate as an efficient cause either because it cannot determine itself to bring about any particular effect.

In sixteenth-century debates the cognition condition had important but contrasting consequences for the discussion of God's providence. The cognition condition had been used to build an argument for the existence of God and to demonstrate that divine design rules the whole of nature. Since natural agents deprived of cognition operate in a regular and goal-oriented manner nonetheless, the cognition condition entails that some form of intelligence rules their operation. Scholastic authors locate this intelligence in God.

For instance, Suárez writes in his *Disputationes Metaphysicae*:[8]

> [T]here is no proper final causality in these actions insofar as they are from natural agents but only a habitude. But as they are from God, there is final causality in them just as in other external and transient actions of God. For the adequate principle of (p. 459) these actions is not only the proximate natural agent, except perhaps with qualification, namely, in such an order. Still, without qualification there is in particular the first cause. And therefore in the adequate principle of such actions is included an intellectual cause intending their end. (DM 23.10.6)[9]

Suárez's position here aims to achieve two goals that proved to be very difficult to reconcile. On the one hand, Suárez follows the previous Scholastic tradition in using the cognition condition as a way to establish God's providential and intelligent ruling of the natural world. He concludes that the actions of brute natural agents are "from God". Suárez even goes so far as to state that there is "no proper final causality" but only a "habitude" in brute natural agents to act in certain ways. In this context, God is thus the only final cause ruling the realm of natural brute things. On the other hand, however, Suárez forcefully defends the causal efficacy of natural beings. In his account of efficient causation, Suárez rejects the view that God is the only efficient cause in nature (DM 18.1) and develops a sophisticated account of the way in which God concurs with the operation of finite beings so that they remain real secondary causes endowed with active and efficacious powers. Suárez's case is representative of a more general tendency in late Scholastic thought towards defending the causal autonomy of natural beings (Schmutz 2001; Sangiacomo 2018b). In this sense, while Scholastic authors were happy to exploit the cognition condition to defend the providential role of God in guiding the course of nature, they also balanced the more radical consequences of this principle by stressing how God's concurrence with natural agents supports, rather than hinders, the causal efficacy of secondary causes (Sangiacomo 2016b).

This Scholastic defense of the causal efficacy of secondary causes is arguably too strong for Calvin's strict account of the subordination of all natural events and actions to God's special providence. However, it is important to appreciate that during the sixteenth century a number of Renaissance thinkers were ready to exploit the cognition condition (and *quod nescis* in particular) to provide an even stronger defense of the autonomy of nature. Scribano (2011, 2018) draws attention to several interesting cases, such as those of Tommaso Campanella and the medical tradition based on the works of Jean Fernel. In both cases the *quod nescis* principle is explicitly used to support the claim that natural agents cannot be brute and inanimate but must be somehow sentient and capable of cognizing and directing their operations. Nonetheless, a number of different authors, who were ready to ascribe some degree of cognition to natural agents, reached a similar conclusion. According to Telesio, for instance, sentient spirits govern all natural processes (Giglioni 2010). Francis Bacon states that the operations of all natural agents are ruled by their perception of what is good or detrimental for them (Bacon 1859: 602).

If one accepts these claims about the sentient nature of natural agents, then the *quod nescis* principle might become a resource to further support their causal efficacy. Sixteenth-century developments thus show that the cognition condition (and the *quod nescis*

principle) could be used not only to establish God's providential ruling of nature, (p. 460) but also to argue for a relative independence and self-sufficiency of natural agents themselves. This latter point is particularly problematic from the point of view of Calvin's insistence on the role of God's special providence in directly and absolutely ruling all events in nature.

4. Conservative Revolutions

Read against this background, Geulincx's endorsement of the *quod nescis* principle is remarkable. Geulincx arguably realizes that this principle could be used to support the Calvinist account of God's special providence insofar as it might lead to considering God as the only cause of all natural events. To do so, Geulincx's strategy consists in combining the *quod nescis* principle with a Cartesian ontology in order to use the principle to build an argument against the causal efficacy of secondary causes (against late Scholastic authors such as Suárez), and to block any attribution of sentient faculties to natural agents (against Renaissance thinkers). In this way, Geulincx saves and strengthens the role that the cognition condition already had in establishing and defending God's providence, while simultaneously exploiting it to support a distinctive Calvinist account of God's special providence against its Scholastic and Renaissance opponents.

All that is needed to succeed in this project is to endorse Descartes's fundamental claim about the ontological distinction and irreducibility of thought and extension. Extended things, considered *qua* extended, cannot think; and thinking things, considered *qua* thinking, cannot be extended. Descartes's dualism puzzled his contemporaries, especially concerning his account of mind–body interactions. However, as Descartes explains to Elisabeth, his main goal was to sharply distinguish what most Scholastic philosophers seemed to conceive of only confusedly, namely, the mutually exclusive and irreducible nature of extension and thought (AT III.665/CSMK 218).

Now, the *quod nescis* principle leaves open the problem of which kind of entities can be endowed with sufficient knowledge to fully account for the production of their effects. Descartes's dualism and his account of the mutually exclusive nature of extension and thought provide a metaphysical argument against the possibility for any extended being, *qua* extended, to be capable of thought, and thus being able to satisfy the *quod nescis* principle. If the whole of the created world is nothing but *res cognitans* and *res extensa*, natural beings, considered as purely corporeal, cannot have any form of cognition or thought. Matter does not and cannot think. Hence, no corporal being could ever be the cause of any effect because it could not ever know how to produce that effect. Concerning the human mind, Geulincx can point to the mind's lack of relevant knowledge to properly account for voluntary motions. Hence, in virtue of *quod nescis*, neither bodies (because they cannot think at all) nor minds (because they do not possess the relevant knowledge) can be considered as proper efficacious causes of the effects we observe. Only God remains as the proper and really efficacious cause of all events.

(p. 461) Geulincx's use of the *quod nescis* principle supports not just an occasionalist metaphysics, but a whole philosophical system (which branches in several domains, ethics included) that is very much inspired by Calvin's interpretation of the "clay in the potter's hand" metaphor. The *quod nescis* principle reinforces the idea that all events in nature happen and are completely determined by God's providence and intentional design. In this respect, the *quod nescis* principle allows Geulincx to exploit a crucial tenet of the Aristotelian-Scholastic tradition (namely the claim that final causes determine natural events, which in turn require cognition) to support the Calvinist account of God's special providence. In Geulincx's hands, Descartes's metaphysics offers the ideal framework to appropriate the *quod nescis* principle in support of the Calvinist account of God's special providence and rebuff the alternatives advanced by both late Scholastics and Renaissance authors.

Let me draw a general conclusion from this examination of Geulincx's case. The idea of revolutions in thought suggests that some group of innovators fought against more traditional authors in order to replace the established conceptual framework and set of accepted practices with a new one. This way of thinking about revolutions overlooks two important factors. First, there are always many competing innovators, struggling to support different new accounts, which most often are quite incompatible with each other (Garber 2013, 2016). For instance, if one thinks about the seventeenth-century landscape, two contemporaries, Descartes and Hobbes, were both defending new accounts that were intended to replace traditional systems; and yet it would be difficult to think of two more contrasting and mutually incompatible approaches than those of Descartes and Hobbes. Second, the success of revolutionary ideas in being progressively accepted and incorporated into established frameworks cannot entirely depend on their own philosophical merits or the virtues of their advocates. In order to gain acceptance, ideas need to be endorsed by a certain audience. The fate of revolutions is thus largely determined by the reasons that these audiences might have had to prefer some innovation over its many rivals. However, it is difficult to imagine that the intended audience of new ideas is made of neutral individuals lacking any pre-existing commitments. In fact, most often the audience that has to accept new ideas is the same audience that also defends and considers as a standard the traditional framework that the new ideas challenge. The reasons why such an audience might thus be convinced to accept some innovation rather than others depend on the way in which these innovations promise to solve urgent problems that remain open in the established framework. This means that traditional authors have to somehow rate their commitments, and decide which one they consider the most valuable and which ones can be left behind. They have to see how new ideas can help rework and carry over the core commitments of the traditional framework while helping to solve or dissipate the problems that surround it. Seen in this perspective, revolutions are *conservative* insofar as they require traditional authors to select what they want to preserve and exploit the drive of new ideas to acclimatize those established core commitments in a new scenario.

Descartes himself seemed to be aware of this conservative nature of conceptual revolutions and tried to present his metaphysics as a resource to solve problems left (p. 462) open in the Scholastic philosophy. In his dedicatory letter to the Sorbonne, Descartes presents his *Meditations* as a response to the request of the Lateran Council for Christians to defend the existence of God and the immortality of the human soul (Fowler 1999). During the disputes in Utrecht that accompanied the reception of his philosophy in the Dutch Republic, Descartes subsequently argued that Voetius's Scholastic acceptance of the presence of mortal souls in non-human animals undermines the belief in the immortality of the human soul. After Descartes's death this became a prominent point in the attempt by many Cartesians to present Descartes as one of the best "modern" defenders of Saint Augustine's own views (Schmaltz 2017: 121–39). Geulincx's reworking of the *quod nescis* principle within a Cartesian dualistic metaphysics shows other facets of the conservative appeal of Descartes's philosophy, and thus helps us to better understand the reasons for its success. In this respect Geulincx's use of the *quod nescis* principle and its apparently uneasy marriage with the Cartesian framework reveals another way to follow in Descartes's footsteps.

References

Aalderink, Mark (2009), *Philosophy, Scientific Knowledge, and Concept Formation in Geulincx and Descartes*. Ridderkerk: Ridderprint Offsetdrukkerij BV.

Bacon, Francis (1859), *The Works of Francis Bacon*, ed. J. Spedding, vol. 2. London: Longman. [Reprint: Stuttgart-Bad Cannstat: F. Frommann Verlag—G. Holzboog, 1986.]

Bardout, Jean-Christophe (2002), "Occasionalism: Cordemoy, La Forge, Geulincx", in Steven Nadler (ed.), *A Companion to Early Modern Philosophy*. Oxford: Blackwell Publishing, 140–51.

Buys, Robert (2010), "Between Actor and Spectator: Arnold Geulincx and the Stoics", *British Journal for the History of Philosophy* 18: 741–61.

Calvin, John (1950), *Commentaries on the Book of the Prophet Jeremiah and the Lamentations*, trans. John Owen. Grand Rapids: Eerdmans.

Calvin, John (1960), *Institutes of the Christian Religion*, ed. J. T. McNeill, 2 vols. Louisville: Westminster Press.

Clarke, Desmond M. (2000), "Causal Powers and Occasionalism from Descartes to Malebranche", in Stephen Gaukroger, John Schuster, and John Sutton (eds.), *Descartes' Natural Philosophy*. London and New York: Routledge, 131–48.

Cooney, Brian (1978), "Arnold Geulincx, A Cartesian Idealist", *Journal of the History of Philosophy* 16: 167–80.

De Lattre, Alain (1967), *L'occasionalisme d'Arnold Geulincx*. Paris: Editions de Minuit.

De Vleeschauwer, Herman J. (1958), *L'opera di Arnold Geulincx (1624–1669): Bibliografia-evoluzione*. Torino: Edizioni di *Filosofia*.

Des Chene, Dennis (1996), *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*. Ithaca and London: Cornell University Press.

Fowler, Colin F. (1999), *Descartes on the Human Soul: Philosophy and the Demands of Christian Doctrine*. Dordrecht: Kluwer.

Garber, Daniel. (2013), "Remarks on the Pre-History of the Mechanical Philosophy", in Daniel Garber and Sophie Roux (eds.), *The Mechanization of Natural Philosophy*. Dordrecht, Heidelberg, New York, and London: Springer, 3–26.

(p. 463) Garber, Daniel (2016), "Why the Scientific Revolution Wasn't a Scientific Revolution, and Why it Matters", in Robert J. Richards and Lorraine Daston (eds.), *Kuhn's Structure of Scientific Revolutions at Fifty: Reflections on a Science Classic*. Chicago: University of Chicago Press, 133–50.

Geulincx, Arnold (1891–3), *Arnoldi Geulincx Antverpiensis Opera Philosophica. Recognovit J. P. N. Land*, 3 vols. Hagae Comitum: Martinus Nijhoff.

Geulincx, Arnold (1999), *Metaphysics*, trans. M. Wilson. Wisbech: Christoffel Press.

Geulincx, Arnold (2006), *Ethics*, trans. Martin Wilson, ed. Han van Ruler, Anthony Uhlmann, and Martin Wilson. Leiden and Boston: Brill.

Giglioni, Guido (2010), "The First of the Moderns or the Last of the Ancients? Bernardino Telesio on Nature and Sentience", *Bruniana & Campanelliana* 16: 69–87.

Kirby, W. J. T. (2003), "Stoic and Epicurean? Calvin's Dialectical Account of Providence in the Institutes", *International Journal of Systematic Theology* 5: 309–22.

Kolesnik-Antoine, Delphine (2006), "Les occasionalismes en France à l'âge classique. Le 'cas' arnaldien", *Revue de métaphysique et de morale* 49: 41–54.

La Forge, Louis de (1997), *Treatise on The Human Mind (1664)*, trans. with an introduction and notes by D. M. Clarke. Dordrecht, Boston, and London: Kluwer.

Nadler, Steven (2010), *Occasionalism: Causation Among the Cartesians*. Oxford: Oxford University Press.

Nicusanti, Veronica (2010), " 'Omnia contemnenda praeter Deum et Ratione'. Virtue and Passions in Arnold Geulincx's *Ethica*", *Historia Philosophica* 8: 27–46.

Pasnau, Robert (2001), "Intentionality and Final Causes", in Dominik Perler (ed.), *Ancient and Medieval Theories of Intentionality*. Leiden: Brill, 301–23.

Penner, Sydney (2015), "Final Causality: Suárez on the Priority of Final Causation", in J. L. Fink (ed.), *Suárez on Aristotelian Causality*. Leiden: Brill, 121–48.

Perler, Dominik, and Ulrich Rudolph (2000), *Occasionalismus: Theorien der Kausalität im arabisch-islamischen und im europäischen Denken*. Göttingen: Vandenhoeck & Ruprecht.

Platt, Andrew (2011), "Divine Activity and Motive Power in Descartes' Physics", *British Journal for the History of Philosophy* 19: 623–46 (part I); 19: 849–71 (part II).

Platt, Andrew (2017), "Cordemoy and the Motives for Cartesian Occasionalism", in Nazif Muhtaroglu (ed.), *Occasionalism Revisited: New Essays from the Islamic and Western Philosophical Traditions*. Abu Dhabi: Kalam Research & Media, 139–66.

Quarantotto, Diana (2005), *Causa finale, sostanza, essenza in Aristotele: Saggio sulla struttura dei processi teleologici e sulla funzione del "telos"*. Naples: Bibliopolis.

Reardon, P. H. (1975), "Calvin on Providence: The Developement of an Insight", *Scottish Journal of Theology* 28: 517–33.

Sangiacomo, Andrea (2014a), "Defect of Knowledge and Practice of Virtue in Geulincx's Occasionalism", *Studia Leibnitiana* 46: 46–63.

Sangiacomo, Andrea (2014b), "Louis de La Forge and the Non-Transfer Argument for Occasionalism", *British Journal for the History of Philosophy* 22: 60–80.

Sangiacomo, Andrea (2016a), "Aristotle, Heereboord and the Polemical Target of Spinoza's Critique of Final Causes", *Journal of the History of Philosophy* 54: 395–420.

Sangiacomo, Andrea (2016b), "From Secondary Causes to Artificial Instruments: Pierre-Sylvain Régis's Rethinking of Scholastic Accounts of Causation", *Studies in History and Philosophy of Science* 60: 7–17.

Sangiacomo, Andrea (2018a), "Modelling the History of Early Modern Natural Philosophy: The Fate of the Art–Nature Distinction in the Dutch Universities," *British Journal for the History of Philosophy*, doi: 10.1080/09608788.2018.1506313.

(p. 464) Sangiacomo, Andrea (2018b), "Neither with Occasionalism nor with Concurrentism: The Case of Pierre-Sylvain Régis", in Matteo Favaretti Camposampiero, Mariangela Priarolo, and Emanuela Scribano (eds.), *Occasionalism: From Metaphysics to Science*. Turnhout: Brepols, 85–103.

Schmaltz, Tad M. (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. New York: Oxford University Press.

Schmid, Stephan (2011), "Teleology and the Dispositional Theory of Causation in Thomas Aquinas", *Logical Analysis and History of Philosophy* 14: 21–39.

Schmutz, Jacob (2001), "La doctrine médiévale des causes et la théologie de la nature pure (XIIIe–XVIIe siècles)", *Revue thomiste* 101: 217–64.

Schreiner, Susan E. (1991), *The Theater of His Glory: Nature and the Natural Order in the Thought of John Calvin*. Durham, NC: Labyrinth Press.

Scribano, Emanuela (2011), "*Quod nescis quomodo fiat, id non facis*. Occasionalism Against Descartes?", *Rinascimento* 51: 63–96.

Scribano, Emanuela (2018), "Connaissance et causalité. Les adversaires de Malebranche", in Matteo Favaretti Camposampiero, Mariangela Priarolo, and Emanuela Scribano (eds.), *Occasionalism: From Metaphysics to Science*. Turnhout: Brepols, 269–288.

Usakiewicz, Joanna (2009), "Arnold Geulincx on Thinking Self and Human Condition", *Studies in Logic, Grammar and Rhetoric* 15: 89–103.

Van Ruler, Han (1993), "Franco Petri Burgersdijk and the Case of Calvinism Within the Neo-Scholastic Tradition", in Egbert P. Bos and Henri A. Krop (eds.), *Franco Burgersdijk (1590–1635). Neo-Aristotelianism in Leiden*. Amsterdam and Atlanta: Rodopi, 37–65.

Van Ruler, Han (2003a), "Geulincx, Arnold (1624–69)", in Wiep van Bunge, Henri Krop, Bart Leeuwenburgh, Paul Schuurman, Han van Ruler, and Michiel Wielema (eds.), *The Dictionary of Seventeenth and Eighteenth-Century Dutch philosophers*, vol. 1. Bristol: Thoemmes, 322–31.

Van Ruler, Han (2003b), "The Shipwreck of Belief and Eternal Bliss: Philosophy and Religion in Later Dutch Cartesianism", in Wiep van Bunge (ed.), *The Early Enlightenment in The Dutch Republic 1650–1750*. Leiden and Boston: Brill, 109–36.

Notes:

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(1) For a bio-bibliographical profile of Geulincx see van Ruler 1999 and 2003a.

(2) Concerning the impact of Calvinism and Protestantism on the shaping of Dutch Cartesianism, see van Ruler 1993 and 2003b.

(3) La Forge will make a similar point a few years later in his *Treatise on the Human Mind* (see La Forge 1997: 145–7; Sangiacomo 2014b). However, La Forge rejects the *quod nescis* principle used by Geulincx in this context (Scribano 2018).

(4) My translation: "Sed quid? inquis, pedes non movemus qui imus? linguam non movemus qui loquimur? Non movemus, inquam; *nescimus enim plerumque, quomodo moveantur*, et qua fronte facere te dicas, *quod nescis quomodo fiat*? […] Hoc igitur tantum scis, quaedam membra tui corporis moveri, cum vis (sublatâ scilicet lassitudine, morbo, et similibus impedimentis); ex quo nullatenus sequitur, a te moveri."

(5) Concerning Geulincx's *Ethics*, see also Usakiewicz 2009 and Buys 2010.

(6) Concerning Geulincx's epistemology, see Aalderink 2009.

([7]) Concerning the historical roots of the *quod nescis*, Nadler (2010: 74–87) also suggests a similarity with Al-Ghazali's account of causation, which is based on volitional actions.

([8]) Hereafter DM.

([9]) Translation by S. Penner: http://www.sydneypenner.ca/SuarTr.shtml.

Johannes Clauberg and the Search for the *Initium Philosophiae*: The Recovery of (Cartesian) Metaphysics

Alice Ragni

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Abstract and Keywords

This chapter examines how the philosophy of Descartes contributed to Clauberg's philosophical system. In this system it is metaphysics that imposes itself on the other sciences, as its contents impose themselves according to the order of knowledge. The core of Clauberg's adherence to Cartesianism is thus linked to his conviction that Descartes's philosophy is, above all, the discovery of the true "beginning" (*initium*) of philosophy, that is, the discovery of a principle that guarantees the primacy of metaphysics, established according to the order of knowledge. Clauberg aims to identify the first science, according to the order of knowledge of things (*ordo cognitionis*) as well as the order of teaching (*ordo doctrinae*), and consequently to establish the organization of all knowledge.

Keywords: Johannes Clauberg, metaphysics, first philosophy, ordo cognitionis, ordo doctrinae

(p. 465) FROM the 1960s to the present day, an increasing number of studies have been devoted to the figure of Johannes Clauberg.[1] Clauberg (Solingen, 1622–Duisburg, 1665),[2] known as a representative of modern German reformed Scholasticism (*Schulmetaphysik*),[3] and also one of the principal figures involved in the spread of Cartesianism in Germany, was considered by Leibniz as a disciple who surpassed his master (Descartes) in clarity.[4] At the Bremen Gymnasium he was the student of Gerhard de Neufville (1590–1648), who taught him the thought of Bacon and Comenius.[5] In 1644 he enrolled in the University of Groningen, where he remained until 1646. There is no significant evidence from this time of a Cartesian influence. In the two following years he undertook a *peregrinatio studiorum* in Saumur, Paris, and London. The first clear evidence of Clauberg's encounter with the philosophy of Descartes dates from April 20, 1648: the conversation between Descartes and Burman that took place on April 16, 1648 in Egmond. Clauberg produced (p. 466) a copy of the record of the conversation, or rather helped Burman in his editing of this record four days after the meeting.[6] Following the advice of his friend and professor Tobias Andreae (1604–76), Clauberg attended a course taught by Johannes de Raey at Leiden, where he arrived in the summer of 1648, to complete his Cartesian philosophical

training. From 1649 to 1651, he was professor of philosophy and theology at Herborn, where, along with his friend Christoph Wittich (1625–87), he suffered a number of attacks due to his support for the new philosophy (of Descartes). Following the adoption of Aristotelianism in his university, Clauberg finally moved to Duisburg, where he remained until his death at the age of 42.

For a long time Clauberg has been known mostly for two reasons. The first concerns a rather durable tradition (falsely) attributing to him the coining of the term 'ontology';[7] the second consists in a representation of Clauberg's philosophy as a scholastic Cartesianism, understood, however, as an eclecticism or an attempt to reconcile or replace these two tendencies.[8] This representation is still valid, because Clauberg's philosophy is characterized by a mixture of different elements and by a complexity that the current debate, which has inaugurated a new wave of studies, has seen as reflective of a systematic and autonomous rather than merely fragmentary and derivative philosophy.[9]

In light of the most recent scholarship, my purpose here is to examine how the philosophy of Descartes contributed, from a particular moment, to the organization of Clauberg's philosophical system. To do this, we need to consider the hegemonic role that Clauberg entrusted to metaphysical examination, and its urgency in the search for the "beginning" (*initium*) of philosophy. This "beginning", generally understood in the context of knowledge, is connected with its "institution" (*instauratio*) in a system of sciences, and with the topic of the "initiation" (*initiatio*), or "entrance" (*introitus*), with respect to the student who must undertake this "beginning" concretely in his studies.

Clauberg's system is founded essentially on the assumption that the search for what is known first in philosophy necessarily involves a stable foundation and, even more, the effective transmission of this first object in the context of instruction. In other words, Clauberg aims at identifying, in philosophy and in a course of philosophy, the first science, according to the order of knowledge of things (*ordo cognitionis*) as well as the order of teaching (*ordo doctrinae*), and consequently at establishing, starting from this science, the organization of all knowledge. In this system it is metaphysics that imposes itself on the other sciences, as its contents impose themselves according to the order of knowledge; therefore this system is necessarily a 'metaphysical' system, insofar as it is founded on metaphysics.

(p. 467) To highlight structural elements of his Cartesianism, we need to examine the way in which, through the mediation of Descartes, Clauberg interprets the meaning of 'metaphysics' and 'first philosophy'. But Clauberg was not always Cartesian: the first part of my study will thus be devoted to elements that compose his original metaphysical system, as it is described in the 1647 *Elements of Philosophy or Ontosophia* (*Elementa philosophiae sive ontosophia*, hereafter *Ontosophia*). The second and third parts of my chapter will then aim to compare these contents to those of the relevant works of Clauberg's Cartesian period, highlighting the evolution of the concepts examined. Finally, I will show that the core of Clauberg's adherence to Cartesianism is linked to his conviction that Descartes's philosophy is, above all, the discovery of the true "beginning" of philosophy,

that is, the discovery of a principle that guarantees, without difficulty, the primacy of metaphysics established according to the order of knowledge.

1. The Beginning of Philosophy in Ontology

The problem of the search for the "beginning" (*initium*) of philosophy appears for the first time in the *Ontosophia*. This work had two other editions, *Ontosophia nova* (1660) and *Metaphysica de ente* (1664), that are very different from the first. I take the first edition as the starting point for my examination, since that is where Clauberg establishes the criteria for his philosophical system.

The initial edition of the *Ontosophia*, written during Clauberg's pre-Cartesian period, first presents the doctrine of being (*Prolegomena* and *Didactica*), then identifies its application to the other domains of knowledge (*De usu*) and the characteristics that distinguish it from the other disciplines, such as theology and logic (*Diacritica*). In this context, Clauberg defines the status of metaphysics by specifying the primary object, method, and first principles by which metaphysics is the first of the sciences and the foundation of all. At the same time he sketches the outlines of a real pedagogic reform, according to which the beginning of philosophy coincides precisely with metaphysics. In other words, ontology is the first of the disciplines because it is the first of the sciences, and it is therefore by necessity the beginning of a whole course of philosophy.

The terms *ontosophia* (or *ontologia*), *metaphysica* (metaphysics), and *prima philosophia* (first philosophy) are employed by Clauberg without distinction. Ontology is identified with first philosophy with respect not to the eminence, that is to say perfection, of the objects examined, but to their universality. The "extent" (*latitudo*) and "commonness" (*communitas*) of the object of first philosophy, which is such that it "transcends and surpasses all things" (Clauberg 1647: *Diacritica*, §55, 265), place this science in a privileged position. For this reason, its primacy must be established as much according to the order of knowledge as according to the order of the disciplines that are the object of instruction.

(p. 468) The position of ontology is even more clear if we compare it to that of theology. Metaphysics is "the first of all disciplines", "it is necessary to start [*incipere*] from it", and it represents "the beginning [*initium*] of all knowledge" (Clauberg 1647: *Diacritica*, §67, 271). On the other hand, theology is the last of the disciplines and constitutes their summit. Clauberg does not include theology within metaphysics; these two sciences are distinct and separated as much according to their object as according to their position in the context of the disciplines. Ontology is first and universal; theology is last and particular. It follows that the special doctrines concerning God, angels, and the soul are excluded from metaphysics.

According to the doctrine of being, since the nature of things is dual, being divided between God and created things, it is necessary to admit a science of God and a science of created things. The properties that our intellect recognizes as common to all things (God as well as creatures) are however the object of a science that is "superior", "prior", "uni-

versal", and "neutral". This is the general science of being, or first philosophy, which is also called "metaphysics" in virtue of the title attributed to the books of Aristotle. "For even if there is nothing that precedes or is superior to God, there is however in our intellect something so common that it comprehends in some way God and other things together" (Clauberg 1647: *Prolegomena*, §4, 2).[10] Consequently the object of metaphysics is defined with respect not to what really exists, but to what the intellect conceives, in virtue of the commonness that is the basis of all things.[11] What the intellect is able to objectify is thus the starting point of metaphysical discourse on reality, which possesses the highest degree of universality. The priority of the intellect comes from the fact that it knows "its first and proper objects by itself and without any explanation that precedes it" (Clauberg 1647: *Prolegomena*, §68, 20). This immediacy[12] is the basis for the process that allows metaphysics to define the concept of being, and also provides, in general, the way to the constitution of metaphysics itself, since the first objects of the intellect are also its *subjectum*: "no discipline, excepting metaphysics, contains the first and supreme objects of the human intellect" (Clauberg 1647: *Diacritica*, §64, 270).[13]

The *Ontosophia* is an examination of the universal determinations that characterize all beings outside of their differences, and its object is being *qua* being. Clauberg recognizes three meanings of "being" (*ens*), established by decreasing extension and increasing determination. Being is identified 1) according to its broadest and most indeterminate meaning, with the "intelligible or thinkable" (*Intelligibile seu Cogitabile*), a thesis already of the Calvinist Clemens Timpler (1563/4–1624). That is to say, being is identified with the *esse objectivum* that is in the intellect, and becomes an object for the intellect insofar as it is known by the intellect. For this reason, but differing from Timpler, Clauberg (p. 469) holds that being as intelligible necessarily includes nothingness (*Nihil*),[14] which, though it possesses no "real being" (*esse reale*), is nonetheless a being-*objectum*, because it represents a pure and simple contradiction. Being corresponds 2) in a less broad sense to "something" (*Aliquid*) that is the intelligible, which is opposed to nothingness in that it possesses an *esse reale*, existing outside the intellect. Finally, being means 3) in a proper sense the "thing" (*Res*) or "real being" (*Ens reale*) that is the same *Aliquid* that includes real attributes. The intelligible has nothing opposed to it, the *Aliquid* is opposed to nothingness, and real being, as in the case of substance, is opposed to accident.

The assumption according to which "the intelligible is something or nothing" (*Intelligibile est Aliquid vel Nihil*; Clauberg 1647: *Didactica*, §37, 45) limits—if the oxymoron be allowed—the unlimited domain to which the intellect applies and from which comes the most common and universal property of intelligibility: being. This doctrine, according to which "being" is above all 'the fact of being thought', will remain through the final edition of the work.[15]

Once the object of metaphysics is established, the search for the *initium* is also necessarily, for Clauberg, an *instauratio* of first philosophy in relation to all other disciplines. Ontology precedes all other sciences, because its object, as it is the most universal, is such that all its properties, principles, and axioms are basic to every other discipline, including logic. However, the relation between metaphysics and logic is an object of confusion: first,

because in the schools logic is taught before metaphysics, and second, because logic and metaphysics have in common the fact that they are both universal. Logic, in distinction from metaphysics, does not belong to philosophy, but is only an instrument of the intellect, a practical knowledge and not a science. This issue does not take long to give rise an insoluble difficulty that places in crisis the primacy of ontology itself.

The *initium* of first philosophy is guaranteed by the fact that the first and supreme objects of intellect correspond to that for which first philosophy searches. There is no difficulty in relation to the immediacy of intellect, which first grasps the concept of being as such, thereby promoting an autonomous access to first philosophy.[16] This *initium* is identified with the first, most simple and best known concepts, that is to say, with the *Intelligibile*, "outside of which the human mind is incapable of conceiving something" (Clauberg 1647: *Didactica*, §4, 37), since it represents what is known first (*primum cognitum*) and from which "we begin consequently to philosophize" (Clauberg 1647: *Didactica*, §8, 38–9). It also necessarily precedes all successive divisions of being.

The difficulty arises when, from this first datum of intellect, we want to—and must—give birth to a science proceeding by divisions, distinctions, and demonstrations. Metaphysics (p. 470) can lead to a perfect comprehension (*comprehensio*)—and not only an *apprehensio*—of its contents (i.e. the full notion of real being), in dealing with the first complex principles and general conclusions deduced from them, only if it employs certain instruments of logic, such as induction and the syllogism.

The project of the *instauratio* thus confronts the difficulty of establishing how metaphysics can precede and found logic, whose instruments are at the same time necessary to know the object proper to it. To be properly a 'science', first philosophy needs logic, without which it must stop at the utterance of its object, without being able to examine it. From an epistemological point of view, Clauberg's solution consists in making logic follow "immediately" (*mox*) from metaphysics, in "combining" (*intermiscere*) them, something which guarantees ontology the status of science. However, on the practical level, this solution runs up against the impossibility of a real pedagogic reform, insofar as students must already be provided with the tools of logic before starting the study of metaphysics.

Clauberg merely asserts that the habit established in the schools of teaching metaphysics as the last discipline (*ordo doctrinae*) must be abandoned in order to respect the *ordo cognitionis*, but he defers this question,[17] and it is no longer found in the *Ontosophia*. In 1647 the individuation of the *initium*, involved at the same time on the side of what is 'first' in the context of knowledge and what is 'first' within a didactic framework, remains a *desideratum* that fails to demonstrate effectively the primacy of metaphysics.

2. The Beginning of Philosophy in Cartesian Metaphysics

In examining works that follow Clauberg's adherence to Cartesianism, I will start with the *Initiation of the Philosopher or Cartesian Doubt, Opening the Way to Metaphysical Certainty* (*Initiatio philosophi sive dubitatio cartesiana, ad metaphysicam certitudinem viam aperiens*; 1655), since in this work the search for the *initium* leads to a significant redefinition of the status of metaphysics.

In the *Prolegomena* to this text (Clauberg 1691: *Initiatio*, 1125–9) it is said that the *initiatio*, understood as "the start of a thing, that is to say the first access to it", is the condition of the person who "is introduced to philosophy, not because he is already a philosopher, but in order that he becomes a philosopher", and who is therefore an "infant philosopher" (*infans philosophus*), that is to say, one without philosophical knowledge.

That is why the initiation into philosophy can be compared to infancy, the period of human existence in which we observe all things and everything surprises us, without any real determinate consideration of them. This "wonder" (*admiratio*)[18] is then the first feeling that arises, involving from the beginning doubt concerning things, to the extent (p. 471) that they are new and unknown. Close to this there is the feeling of one who "is about to philosophize seriously for the first time" (*primum ad serio philosophandum se accingit*).[19] The term 'infant' (that is, one who is still speechless) indicates precisely the condition of one who is about to philosophize without "speaking" and without "deciding", "but who strives in the first place to perceive those very things", even before translating them into philosophical opinions. The condition of the infant-philosopher thus coincides with a "neutral state, that is to say, doubtful", by which the mind is purified of false opinions and is then ready to be introduced to the true philosophy.

The initiation of the "Cartesian philosopher/disciple" is identified with the suspension of judgment concerning all opinions according to the method of "metaphysical doubt" (*Metaphysica dubitatio*),[20] as it is introduced, according to Clauberg, in the fourth part of the *Discourse*, in all of *Meditation I*, and toward the start of the first part of the *Principles*. Doubt is to be understood, synthetically, as a "universal revision" (Clauberg 1691: *Initiatio*, §32, 1139) of all that we have judged from childhood in order to examine, at a more mature age, its assumed validity.

Doubt thus realizes the "first access to philosophizing", an access that is now really autonomous, because one can put it in place without having any philosophical knowledge and even without any support from logic. "Metaphysical doubt" has for Clauberg, however, a didactic and propaedeutic end, because it is always directed to the introduction of the disciple to the study of philosophy. For this reason Clauberg submits doubt to a series of limitations that restrict its application to a philosophical context.[21] It concerns, for example, not simple but only complex notions; it concerns not the practical but the theoretical domain. In the same way, it concerns not the contents of Revelation, but only those accessible to the natural light. Among the disciplines, doubt concerns neither physics and

geometry, nor “all of metaphysics, but only its beginning” (Clauberg 1691: *Initiatio*, §28, 1209). For Clauberg doubt is thus the true instrument for accessing philosophy, and it constitutes a sort of “primitive logic” that guarantees the autonomy of metaphysical examination.[22]

Consequently “disciples of the true philosophy must take metaphysics as their point of departure” (Clauberg 1691: *Initiatio*, §11, 1154), though Clauberg now attributes to the term ‘metaphysics’ a different meaning from that of the *Ontosophia* of 1647. In his commentary on the beginning of the fourth part of the *Discourse* (AT VI.31–2/CSM I.126–7), found in the *Initiation of the Philosopher* (Clauberg 1691: 1153–61), Clauberg describes the double error one traditionally commits in considering metaphysics, as much according to the order of discovery (*ordo inventionis*) as according to the order of the transmission of knowledge (*ordo traditionis*): it is mistakenly considered that metaphysics is to be sought, discovered, and put in place after physics and other disciplines. Hence there is the sense of the term ‘metaphysics’ as *post*-physics and the widespread tendency to (p. 472) consider metaphysics after the other parts of philosophy. Up to this point there is nothing new with respect to the edition of 1647 and to the claim to defend the absolute primacy of metaphysics.

What differs, however, is the sense that Clauberg attributes to “Cartesian metaphysics” (Clauberg 1691: *Initiatio*, §22, 1156).[23] In the first place, the “first meditations” of which Descartes speaks are “so metaphysical” because, as Clauberg claims, they are “beyond natural reasons” (*supra rationes naturales*) that are usually applied; they exceed the ordinary conditions of scientific knowledge. In this sense it is possible to maintain, with Descartes, the name ‘metaphysics’, understanding by “Cartesian metaphysics” “not the science discovered and taught after physics”, but that which concerns, differently from physics, “an argument that is much nobler and higher”, due to the “sublimity” (*sublimitas*) and “excellence” (*excellentia*) of its object. This being so, continues Clauberg, the preposition ‘μετά’, from which the name ‘metaphysics’ derives and of which it is composed, means not *post* but *trans* or *supra*, that is to say, according to the language of the peripateticians, “transnatural or surnatural philosophy” (*philosophia transnaturalis vel supernaturalis*). ‘Meta-physics’ thus corresponds to what is *supra rationes naturales*, because its formal object exceeds the domain of scientific knowledge. This is why Clauberg understands by “metaphysical doubt” the hyperbolic doubt that transcends the ordinary way of doubting, and by “metaphysical certitude” what is infinitely greater and more elevated than ordinary certitude.

Clauberg thus recovers a distinction between metaphysics as *trans*-physics, on the one hand, and as *post*-physics, on the other. This distinction, which was evidently not operative in the *Ontosophia* of 1647, is now introduced to interpret the metaphysics of Descartes. The rehabilitation of *trans*-physics, understood as what is *supra rationes naturales*, and the exclusion of *post*-physics, understood as what comes after physics, obviously represents for Clauberg the way to classify Cartesian philosophy according to the employment, and recovery, of traditional terms. Cartesian metaphysics can be situated in the context of a *trans*-physical examination since its object exceeds, by its eminence/excel-

lence, that of physics. However, it can in no way be situated in the context of a *post*-physical examination, since this same object enjoys a primacy/priority according to the order of knowledge.

In the *Ontosophia* of 1647, first philosophy, as Clauberg again understands it here, must not be characterized as a *trans*- or *post*-physics, because in virtue of the nature of the intellect, what is *notiora nobis* coincides exactly with what is *notiora natura*, that is to say with metaphysical principles. In other words, due to the noetic foundation of metaphysics, the objects that the intellect knows first are also, necessarily, the first objects of first philosophy. The Aristotelian methodological criterion, according to which it is necessary to proceed with things that are 'prior for us' to things that are 'prior by nature' is thus neutralized by the priority of the intellect, because the things that are 'prior for us'—which are achieved by the intellect and its operations—coincide with what is 'prior "by nature'.

(p. 473) Instead, following his adherence to Cartesianism, Clauberg reinterprets the primacy of metaphysics. He now understands "Cartesian metaphysics" as a *trans*-physics that only transcends the ordinary conditions of scientific knowledge, because God is considered not in an absolute manner, but simply with regard to his role in founding the principles of philosophy.[24]

All of this is confirmed in the *Metaphysics of Being* (*Metaphysica de ente*; 1664). In this text we see a *redoublement* of Claubergian metaphysics, which consists on the one hand in a first philosophy—that of the six *Meditations* and of the first part of the *Principles*—and on the other hand in an ontology.[25] The *initium* of philosophy thus takes place outside of ontology, through the mediation of the contents of the first philosophy of Descartes; to ontology belongs a science that completes all knowledge.

There is also a change in the sense that Clauberg attributes to first philosophy, which "is said to be such no longer in virtue of the universality of the examined object, but because whoever is to philosophize seriously must start with it" (Clauberg 1691: *Metaphysica de ente*, §5, 283*e*). The primacy of Cartesian first philosophy thus does not come from the universality of the *Ens cogitabile* (ontology, that is to say universal philosophy, is concerned with this), but from the particularity of the *Mens cogitans*, and consequently from the figure of the *ego*, which, first, in individualizing the *cogitatio*, imposes itself in the *ordo cognitionis* according to the order of evidence. A comparison of the universality to the particularity of these respective *initia* indicates that universal philosophy begins "with thinkable being [*Ens cogitabile*], in the same way in which first philosophy, which takes the particular as its point of departure, considers nothing before the mind that thinks [*Mens cogitans*]" (Clauberg 1691: *Metaphysica de ente*, §5, 283). This is also confirmed in a passage from the *Initiation of the Philosopher* (Clauberg 1691: §5, 1166) where Clauberg claims that "Descartes begins philosophy not with being, but with mind, not with any mind, but with his own, a singular and existing thing; he proceeds from that to God."[26]

The first philosophy of Descartes, which is the true *initium*, is that of the person who is about to philosophize seriously by moving from knowledge of his own mind to that of God. If we consider the way in which it violates the common *rationes naturales*, Cartesian first philosophy can be associated with a *philosophia transnaturalis vel supernaturalis*. On the other hand, ontology is now *postnaturalis*, because it is universal philosophy that deals with the common concept of being, once one has learned the contents of all the particular disciplines.

Clauberg therefore carries out a reversal, with respect to priority, of the universal in relation to the particular. Ontology becomes the last of the sciences, from its former position as first, just as the universality of its object is no longer a condition of its primacy, but of its conclusive role in the general framework of knowledge. The two metaphysics, (p. 474) that of Descartes and that which is 'ontologized', are contiguous and complementary. With respect to their status, Savini (2011: 188, 299) holds that Cartesian metaphysics—that of Descartes's *Meditations*, which includes first principles and consequently founds all philosophy—is a *metaphysica specialis*[27] and that ontology—that of the *New Ontosophia* or the *Metaphysics of Being* that resumes the section *Didactica* of 1647 and that develops the universal philosophy of being *qua* being—is a *metaphysica generalis*.[28] Cartesian metaphysics, which takes the particular as its point of departure, is foundational in virtue of its epistemic content, and ontology, which takes the universal as its point of departure, relies on the principles of this metaphysics, while maintaining its formal coherence and internal autonomy through the principles of excluded third and non-contradiction.

3. Cartesian and Scholastic Philosophies

The way in which the search for *initium* factors into the organization of the Claubergian metaphysical system can also be seen in the context of the 1657 *Differences between the Cartesian and the Common Philosophy Used in the Schools* (*Differentia inter cartesianam, et in scholis vulgo usitatam philosophiam*; Clauberg 1691: 1217–35).[29] This brief text, which has not attracted the interest of commentators, includes a series of elements that are significant in relation to the theme of *initium* and to the way in which this directs reflection on the nature of metaphysics.

Clauberg's purpose here is to establish what Cartesian philosophy consists in and how it differs from the philosophy commonly taught in the schools (*Scholastica Philosophia* or *Vulgaris Philosophia*). The first important difference concerns the simplicity of the elements that compose its principles, such as the limited number of rules—four—that Descartes gives as the basis of his philosophy. Cartesian philosophy is distinguished from the common philosophy because it "finds its beginning in few things" (Clauberg 1691: §25, 1223), as is the case for example with the reduction of the ten categories to two, namely what has an intellectual essence (God, angels, and the human soul) and what has a corporeal essence (sky, earth, water, etc.).

The difference “that concerns the first entrance [*introitus*] into philosophy” (Clauberg 1691: 1225) shows clearly that the comparison between Cartesian philosophy and Scholastic philosophy must be understood in relation to the ways in which they interpret the premises from which the disciple begins to learn. The Scholastic philosophy teaches (p. 475) him that “it is necessary to believe” in what he has been habituated to see, hear, and sense from his childhood, according to the principle that nothing is in the intellect that was not first in the senses. In contrast, Cartesian philosophy is against all belief the truth of which is not established by the principle of evidence, and it demands that all prejudices and opinions of childhood be abandoned from the beginning, following the model of doubt. Cartesian philosophy thus originates from a “new and purified” foundation.

An important difference, however, arises from the relation to what both philosophies establish as “the first beginning of speculative examination and its transmission” (*primum initium scrutinii atque doctrinae*). For Scholastic philosophy this takes place with corporeal things (*a rebus corporalibus*), that is to say, in being founded on the contents of the external senses, whereas Cartesian philosophy proceeds from spiritual or intellectual things (*a rebus spiritualibus aut intellectualibus*) and by taking into account the reasons of those who are about to philosophize (*ratione utentibus*).

From these two ways of understanding the “beginning”, according to Clauberg, come two different visions of the status of *prima philosophia*. For the Scholastics *prima philosophia* is said to be “first” due to the nature, and thus the dignity, of its object, not, therefore, because it is first according to the *ordo cognitionis*, but because it is last. This is the reason why it is said to be “*metaphysica*” in the sense of “*post-physicam*”—that is to say, because it is the science at which one arrives after physics, according to the order of knowledge as much as to the order of teaching. In contrast, Cartesian philosophy is the depository of a true beginning from the perspective of both speculative examination and teaching, because, to the extent that it is first according to the order of discovery (*primum est inventa*; Clauberg 1691: §37, 1226), it is truly “first”. It is nevertheless decisive that “Descartes posits as the start of his first philosophy knowledge of the self and of God the creator” (Clauberg 1691: §25, 1224), in distinction from other philosophers, who posit before metaphysics knowledge of corporeal things because they think that it is not necessary to demonstrate their actual essence from the knowledge of God.

In starting with a mind that doubts and that arrives at certitude, Clauberg makes this the true *primum* in philosophy, because this mind is plainly intelligible: “Nothing is closer to our mind than itself, and there is nothing more intelligible [*intelligibilius*] than the fact that it is itself something and that it thinks, even if it continues to doubt all other things that can exist in the world” (Clauberg 1691: §40, 1226). The gap between the intelligibility of *mens* and the intelligibility of *ens* is thus unveiled, and on this is based the classification and the separation of the two moments of metaphysical examination: first philosophy and the universal philosophy of being.

4. Conclusion

It is therefore the theme of the *initium* of philosophy that constitutes the *desideratum* of Claubergian reflection, because that is what is sought, but not plainly and definitively established, in the *Ontosophia* of 1647. This search is achieved with the help of Cartesian (p. 476) first philosophy, because this allows for the establishment of the primacy of metaphysics, a 'recovered' *trans*-physical metaphysics, according to the order of teaching as much as the order of knowledge.

Let us consider, therefore, according to these two orders, two conclusive issues. Once assured that "in the search for truth it is necessary to start by doubting" (Clauberg 1691: *Initiatio*, §11, 1133), the theme of *initium* finds a solution, according to the order of teaching, by employing the doubt of the *Meditations* joined to the rules of the method contained in the *Discourse*. This solution shows the infant-philosopher how practically to have access to philosophy by means of the contents of metaphysics and without the intervention of traditional logic.

In his *Cartesian Defense* (*Defensio cartesiana*; 1652), written in response to the objections of Revius and Lentulus to the absence of a logic in Descartes's philosophy,[30] Clauberg offers a systematic theory of Cartesian method, whose four rules from the second part of the *Discourse* (AT VI.18–19/CSM I.119–20) are identified with "the whole of Cartesian logic". Clauberg believes, contrary to his adversaries, that a logic is already implicitly present within Descartes's thought and that this, although insufficiently developed by its author, is to be followed and completed.

This occurs with the *Old and New Logic* (*Logica vetus et nova*; 1654, 2nd edn. 1658), a work that has as a goal the redefinition of the framework of traditional logic by means of its integration not only with the new philosophy,[31] but also with a hermeneutical dimension.[32] The structure of this work in four parts, already fixed in the *Ontosophia* (Clauberg 1647: 274–7), establishes a distinction of logic into genetic and analytic. The first, which concerns the correct formation of one's own thoughts, is divided in turn into logic properly speaking, on the one hand, and hermeneutic or interpretative logic, on the other. The second, which concerns the understanding or evaluation of the thoughts of another, is divided into hermeneutical analytic and analytic properly speaking.

The four rules of Cartesian method do not represent the whole of logic, however. Their explanation belongs, according to Clauberg, to the first part of genetic logic. The fundamental point, in relation to the theme of *initium* with which we started, is that logic as *methodus cartesiana* is not an instrument prior or extrinsic to metaphysics, because it is truly the structure of "a metaphysical itinerary that […] functions according to logic" (Savini 2011: 161).

In passing to the second conclusive issue indicated previously, the search for the *initium* finds a solution, according to the order of knowledge, through the predominance of epistemic priority over the concept of being, which is established by Cartesian first philosophy.[33] From the practical exercise of doubt come particular contents (the (p. 477) soul and

God) that are nevertheless examined not absolutely and properly, but simply as principles of all knowledge. This suffices to enlarge the metaphysical domain, because these contents are in any case privileged objects. In the ontology of 1647, metaphysics implies the transcendence of the object examined in terms of "extent" and "commonness", whereas it excludes transcendence in terms of "excellence" (*nobilitas*) and "supereminence" (*supereminentia*), since that would be rather the domain of natural and supernatural theology. With the integration of Cartesian first philosophy, metaphysics also includes what is *supra rationes naturales* (*trans*, that is to say, knowledge of the soul and God), in order to establish its foundation, as the doctrine of being (*post*, since it now follows all the contents of the particular disciplines), though it still excludes an absolute and exhaustive treatment of God, that is to say, rational theology in a proper sense, for which Clauberg still reserves a distinct role. Though there is no doubt that Clauberg sees in the metaphysics of Descartes *a* theology,[34] since it concerns special contents that are established in the order of what is *supra rationes naturales*, this is not *all* of rational theology.

Cartesian metaphysics as interpreted by and integrated into the Claubergian system 1) is the only one that can be said to be *trans*-physics, even if it is not *post*-physics, since it finds its beginning directly in spiritual things, imposing itself according to the order of clear and distinct knowledge and thereby guaranteeing a foundation for the totality of knowledge. This metaphysics also 2) is thereby a special metaphysics (that is, a science of immaterial substances), even if diminished, since it provides not a comprehensive treatment of its 'excellent' contents, but their restriction to functional principles that found the whole of philosophy. Finally, this metaphysics 3) does not cover the whole field of metaphysical examination, because it must always be accompanied by ontology, that is to say, the universal philosophy of being.

The equilibrium of the Claubergian metaphysical system comes from the fact that it always responds, even after the adherence to Cartesian philosophy, to four fundamental conditions. In all of his works, Clauberg always aims at 1) the search for the *initium* of philosophy, that is to say, the individuation of what makes it possible that 2) metaphysics is posited as the principle of all philosophy.[35] This primacy implies that metaphysics is associated with 3) the definition of first philosophy as the science of the principles of all knowledge, from which it follows finally that 4) what is first according to the *ordo cognitionis* is established as first according to the *ordo doctrinae*.

To be "first", Clauberg requires that philosophy be primary according to the order of knowledge. It is true that in the *Ontosophia* of 1647, philosophy is said to be first because in it "are contained all the foundations and principles of all knowledge and all science that are obtained by the natural light" (*Ontosophia, Praefatio*), among which prevails the intelligibility of being as that which is known first. But this is also true later, when Clauberg recognizes in *De Cognitione Dei et nostri* (1656) that Cartesian first philosophy "treats the principles of human knowledge, that is to say, the first beginnings and (p. 478) foundations of all our science, that we can recover by the light of nature" (Clauberg 1691: *De cognitione Dei et nostri*, §9, 592). These principles, which no longer correspond to being, are endowed with greater intelligibility—they impose themselves, after the applica-

tion of doubt and by virtue of the principle of evidence, as first according to the order of knowledge. The fact that they are also ‘excellent’ (the soul and God) supposes the ‘recovery’ of a traditional *trans*-physical domain of metaphysics.

Clauberg can thus provide an interpretation of the sense of Cartesian first philosophy, since in his philosophical system the primacy of metaphysics is already searched for and established according to the order of knowledge. For his metaphysics is characterized, from the beginning, as the science of being as thought by the mind. The novelty of the philosophy of Descartes thus consists in the primacy/priority, absolute and indisputable, of the thinking mind that guarantees the whole of knowledge. What remains stable in the passage from being, considered according to the highest criteria of intelligibility, to knowledge itself, and to what guarantees it, is the primacy of the *ordo cognitionis* realized in metaphysics. It is thus that Clauberg integrates, by reinterpreting, the Cartesian concept of first philosophy, and with it, the search for the *initium* understood as what is ‘first’ insofar as it is known and firmly established.

Translation by Tad Schmaltz

References

Bardout, Jean-Christophe (1999), “Clauberg et Malebranche, de l’*Ontosophia* à la ‘Vision en Dieu’ ”, in Theo Verbeek (ed.), *Johannes Clauberg (1622–1665) and Cartesian Philosophy in the Seventeenth Century*. Dordrecht, Boston, and London: Kluwer Academic Publishers, 135–45.

Bohatec, Josef (1912), *Die cartesianische Scholastik in der Philosophie und reformierten Dogmatik des 17. Jahrhunderts*. Leipzig: Deichert. [Reprint: Hildesheim: Georg Olms, 1966.]

Brosch, Pius (1926), *Die Ontologie des Johannes Clauberg*. Greifswald: Hartmann.

Carraud, Vincent (1999), “L’ ontologie peut-elle être cartésienne? L’ exemple de l’*Ontosophia* de Clauberg, de 1647 à 1664: de l’*ens* à la *mens*”, in Theo Verbeek (ed.), *Johannes Clauberg (1622–1665) and Cartesian Philosophy in the Seventeenth Century*. Dordrecht, Boston, and London: Kluwer Academic Publishers, 13–38.

Clauberg, Johannes (1647), *Elementa philosophiae sive ontosophia, scientia prima, de iis quae Deo creaturisque suo modo communiter attribuuntur, distincta partibus quatuor*. Groningen: Johannes Nicolai.

Clauberg, Johannes (1652), *Defensio cartesiana, adversus Jacobum Revium et Cyriacum Lentulum*. Amsterdam: Lodewijk Elzevier.

Clauberg, Johannes (1654), *Logica vetus et nova quadripartita*. Amsterdam: Lodewijk Elzevier (2nd edition 1658).

Clauberg, Johannes (1655), *Initiatio philosophi sive dubitatio cartesiana, ad metaphysicam certitudinem viam aperiens*. Leiden and Duisburg: Adrian Wyngaerden.

Clauberg, Johannes (1656), *De cognitione Dei et nostri, quatenus naturali rationis lumine, secundum veram philosophiam, potest comparari, exercitationes centum*. Duisburg: Adrian Wyngaerden.

Clauberg, Johannes (1657), *Unterschied zwischen der cartesianischer und der sonst in Schulen gebräuchlicher Philosophie*. Duisburg: Adrian Wyngaerden.

(p. 479) Clauberg, Johannes (1660), *Ontosophia nova, quae vulgo metaphysica, theologiae, jurisprudentiae et philologiae, praesertim germanicae, studiosis accommodata*. Duisburg: Adrian Wyngaerden.

Clauberg, Johannes (1664), *Metaphysica de ente, quae rectius ontosophia*. Amsterdam: Daniel Elzevier.

Clauberg, Johannes (1680), *Differentia inter cartesianam et alias in scholis usitatam philosophiam*. Berlin: Rupert Völcker.

Clauberg, Johannes (1691), *Opera omnia philosophica*. Amsterdam: Peter et Joan Blaeu. [Reprint: Hildesheim: Georg Olms, 1968.]

Clauberg, Johannes (2007), *Logique ancienne et nouvelle*, ed. and trans. Guillaume Coqui and Jaqueline Lagrée. Paris: Vrin.

Collacciani, Domenico (2015), "L'*admiratio* nella *Logica* di Clauberg", in Carlo Borghero and Claudio Buccolini (eds.), *La ragione e le sue vie: Saperi e procedure di prova in età moderna*. Florence: Le Lettere, 82–115.

Coqui, Guillaume (2009), "Le cartésianisme de Clauberg", in Jean Ferrari, Pierre Guenancia, Margit Ruffing, Robert Theis, and Matthias Vollet (eds.), *Descartes und Deutschland —Descartes et l'Allemagne*. Hildesheim, Zürich, and New York: Georg Olms, 29–44.

Courtine, Jean-François (1990), *Suarez et le système de la métaphysique*. Paris: Presses Universitaires de France.

Dibon, Paul (1990), *Regards sur la Hollande du Siècle d'Or*. Naples: Vivarium.

Gens, Jean-Claude, ed. (2006), *La logique herméneutique du XVIIe siècle: J.-C. Dannhauer et J. Clauberg*. Argenteuil: Le Cercle Herméneutique—Collection Phéno.

Leinsle, Ulrich Gottfried (1988), *Reformversuche protestantischer Metaphysik im Zeitalter des Rationalimus*. Augsburg: Maro-Verlag.

Leinsle, Ulrich Gottfried (1999), "Comenius in der Metaphysik des jungen Clauberg", in Theo Verbeek (ed.), *Johannes Clauberg (1622–1665) and Cartesian Philosophy in the Seventeenth Century*. Dordrecht, Boston, and London: Kluwer Academic Publishers, 1–12.

Mancini, Italo (1960), "L' ontosophia di Johannes Clauberg e i primi tentativi di sostituzione cartesiana", in *Festschrift H. J. de Vleeschauwer*, Communications of the University of South Africa, Nr. C Supplement 1. Pretoria: University of South Africa, 66–83.

Marion, Jean-Luc (1986), *Sur le prisme métaphysique de Descartes: Constitution et limites de l' onto-théo-logie dans la pensée cartésienne*. Paris: Presses Universitaires de France.

Marion, Jean-Luc (1997), "Le paradigme cartésien de la métaphysique", *Laval théologique et philosophique* 53: 785–91.

Ragni, Alice (2016), "Ontologia e *analogia entis* tra Johannes Clauberg e Jacob Thomasius", *Archivio di Filosofia* 84: 155–66.

Ragni, Alice (2017), "Alle origini dell' ontologia. I lessici filosofici di Goclenius, Micraelius e Chauvin", *Giornale Critico della filosofia italiana* 96: 80–97.

Savini, Massimiliano (2011), *Johannes Clauberg: Methodus cartesiana et ontologie*. Paris: Vrin.

Strazzoni, Andrea (2012), "The Dutch Fates of Bacon's Philosophy: *libertas philosophandi*, Cartesian Logic and Newtonianism", *Annali della Scuola Normale Superiore di Pisa—Classe di Lettere e Filosofia* 4 n.s.: 251–81.

Strazzoni, Andrea (2013), "A Logic to End Controversies: The Genesis of Clauberg's *Logica Vetus et Nova*", *Journal of Early Modern Studies* 2: 123–49.

Trevisani, Francesco (1992), *Descartes in Germania: La ricezione del cartesianesimo nella facoltà filosofica e medica di Duisburg (1652–1703)*. Milan: FrancoAngeli.

Verbeek, Theo, ed. (1999a), *Johannes Clauberg (1622–1665) and Cartesian Philosophy in the Seventeenth Century*. Dordrecht, Boston, and London: Kluwer Academic Publishers.

(p. 480) Verbeek, Theo (1999b), "Johannes Clauberg: A Bio-Bibliographical Sketch", in Theo Verbeek (ed.), *Johannes Clauberg (1622–1665) and Cartesian Philosophy in the Seventeenth Century*. Dordrecht, Boston, and London: Kluwer Academic Publishers, 181–99.

Verbeek, Theo (2016), "Clauberg, Johannes (1622–1665)", in Lawrence Nolan (ed.), *The Cambridge Descartes Lexicon*. New York: Cambridge University Press, 123–4.

Viola, Eugenio (1975), "Scolastica e cartesianesimo nel pensiero di J. Clauberg", *Rivista di filosofia neo-scolastica* 67: 247–66.

Weier, Winfried (1960), *Die Stellung des Johannes Clauberg in der Philosophie*. Mainz: Universität Mainz.

Weier, Winfried (1970), "Cartesianischer Aristotelismus im 17. Jahrhundert", *Salzburger Jahrbuch für Philosophie* 14: 35–67.

Weier, Winfried (2000), “Leibnitiana bei Johannes Clauberg”, *Studia Leibnitiana* 32: 21–42.

Wundt, Max (1939), *Die deutsche Schulmetaphysik des 17. Jahrhunderts*. Tubingen: J. C. B. Mohr. [Reprint: Hildesheim, Zürich, and New York: Georg Olms, 1992.]

Notes:

([1]) The fundamental stages of this renewal of interest are, in order, the reprinting of the *Opera Omnia Philosophica* (Clauberg 1691) in 1968, the proceedings of the 1995 Groningen conference, edited by Verbeek (1999a), and, in more recent years, the French translation of the *Logica vetus et nova* (Clauberg 2007) and the volume of Savini (2011).

([2]) The main source on the life of Clauberg is the *Johannis Claubergii Vita* by H. C. Henninius (1655–1703), Clauberg’s colleague at Duisburg, which was published in Clauberg 1691. See also Verbeek 1999b.

([3]) See Wundt 1939: 93–6.

([4]) Concerning the manifest interest of Leibniz in Clauberg’s philosophy, see Weier 2000: 21–42.

([5]) For Bacon, see Strazzoni 2012; for Comenius, see Leinsle 1988: 88–105, and 1999: 1–12.

([6]) According to Verbeek (1999b: 181), this shows that Clauberg “was already part of the Leiden Cartesian set”.

([7]) For a reconstruction of this history, see Ragni 2017: 80–4.

([8]) On Clauberg’s scholastic Cartesianism, see Bohatec 1912; on his eclecticism, see Brosch 1926; Weier 1960, 1970; Mancini 1960; Viola 1975.

([9]) I am referring here to the volume of Savini (2011), which shows, following a suggestion of Dibon (1990: 599), that Clauberg borrowed from Descartes not a new system, but a new method to use in the framework of a pre-existing philosophical system, one which needed to be founded in a more stable manner.

([10]) On the way in which God and creatures can be included under the same concept, see Ragni 2016.

([11]) This is the point of departure for the classification of Clauberg’s ontology as a noetic science; see Carraud 1999: 17.

([12]) *a Deo et Creaturis in genere spectatis primae Philosophiae effata immediate abstrahuntur* (Clauberg 1647: *Prolegomena*, §31, 10).

([13]) *ea, quae in Metaphysicis definiuntur ac dividuntur, sunt prima et summa intellectus objecta* (Clauberg 1647: *Prolegomena*, §66, 20).

([14]) *Intelligibile est, quicquid quovis modo est, cogitari ac dici potest. Ita dico Nihil, et dum dico cogito, et dum cogito, est illud in intellectu meo* (Clauberg 1647: *Didactica*, §2, 37).

([15]) I share the view of Bardout (1999: 136), according to which ontology is represented as the "science of being insofar as thought and produced from its concept", more than as the science of being insofar as it is being.

([16]) Bardout (1999: 136–7) thinks that "being, in this minimal meaning, is fully transparent to the light of thought", so that the first object of metaphysics becomes the object as such, that is to say the formal and indeterminate object. See also Courtine 1990: 246–76.

([17]) See Clauberg 1647: *Diacritica*, §181, 303–4.

([18]) See on this subject Collacciani 2015.

([19]) One can only return to Descartes, *Principles of Philosophy* I.75, AT VIIIA.38/CSM I. 221, and the *Meditations*, AT VII.512/CSM II.348.

([20]) See Clauberg 1691: *De cognitione Dei et nostri*, §11, 597.

([21]) See on this subject Trevisani 1992: 69–71, and Verbeek 1999a: 117–18.

([22]) Savini 2011: 169.

([23]) On the Cartesian concept of metaphysics, cf. Marion 1986: 9–72.

([24]) *Nam initio Philosophiae non ulterius agitur de Deo, quam quatenus ejus cognitio ad jacienda omnis scientiae humanae fundamenta desideratur* (Clauberg 1691: *De cognitione Dei et nostri*, §7, 596); *ad Deum progreditur, non absolute secundum omnia attributa considerandum* […] *verum secundum ea tantum, quae pertinent ad principia et fundamenta Philosophiae* (Clauberg 1691: *Initiatio*, §5, 1166).

([25]) Savini 2011: 177.

([26]) See Clauberg 1691: *Differentia*, 1229.

([27]) See for this Courtine 1990: 484–8 and Marion 1997.

([28]) The success of Clauberg in reaching a well-balanced system is also demonstrated by the fact that the two successive editions of the *Ontosophia* (1660, 1664) delete sections devoted to the relation between metaphysics and the other disciplines (*Diacritica*; *De usu*).

([29]) On the editions and translations of this work, see Verbeek (1999b: 191), in which it is necessary however to correct the year of the first publication (in German), which was 1657, and not 1658 (Herzog-August-Bibliothek Wolfenbüttel). This edition was followed by the Latin translation in 1680.

([30]) For the criticisms addressed to Descartes and the continuity that derives from them between the *Cartesian Defense* and the *Old and New Logic* of Clauberg, see Strazzoni 2013.

([31]) According to Verbeek (2016: 123), the main effort of Clauberg consisted in "normalizing" Cartesianism—a non-academic philosophy—in the context of institutions and academic *curricula*.

([32]) On this subject, see Gens 2006.

([33]) I share the view of Coqui (2009: 32), according to which "it is in part to the original problem of the entrance to philosophy […] that the Cartesian concept of first philosophy serves, according to Clauberg, to respond".

([34]) *Theologiam seu Metaphysicam suam moliatur Cartesius* (Clauberg 1691: *Defensio*, §8, 1011).

([35]) *Quae sunt fundamenta seu principia Metaphysicae, eadem sunt totius Philosophiae, quia Metaphysica est principium omnis Philosophiae* (Clauberg 1691: *Initiatio*, §29, 1158).

Alice Ragni

University of Luzern

What is Cartesianism?: Fontenelle and the Subsequent Construction of Cartesian Philosophy

Mitia Rioux-Beaulne

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Abstract and Keywords

Although Bernard le Bovier de Fontenelle has often been treated as merely a “popularizer” of Descartes’s philosophy, it is shown here that Fontenelle’s Cartesianism is a peculiar one. Cartesianism is mainly treated by Fontenelle as an exemplary modern “way of reasoning”, and absolutely not as a coherent “system” that one should adhere to. This has two consequences: first, this way of reasoning, the “geometrical spirit”, can be applied to domains that the Cartesian system would have forbidden (poetic, politics, etc.); and second, this way of reasoning, supposedly relying on higher norms of clarity, is used by Fontenelle to oppose the Newtonian system of attraction at a time when all his contemporaries are adopting it.

Keywords: Bernard le Bovier de Fontenelle, modernity, physics, popularization, geometrical spirit

(p. 481)

> “My Fontenelle is the heir of Descartes, and the historian of Newton.”
>
> (Flourens 1847: viii)

BERNARD le Bovier de Fontenelle (Rouen, 1657–Paris, 1757) is one of those writers who shakes up a traditional and simplistic way of conceiving and thus making the history of philosophy, and this is so especially if one considers him from the perspective of the relation he has with the philosophy of Descartes. On the one hand, his work and its effects on eighteenth-century thought are an illustration 1) that a reception is never *passive*; and 2) that a reception is never *pure*. With regard to the first point, the study of the life and work of Fontenelle allows us to take account of a subversive character that can assume the guise of a “popularizer”. In fact, for a long time the *Dialogues on the Plurality of Worlds* (1686) has given the impression of being only an accessible version of Cartesian cosmology, intended to facilitate understanding in a public untrained in reading treatises such as the *Principles of Philosophy*. Fontenelle thus appeared as a kind of second-class

philosopher, spreading Cartesianism and the scientific spirit (Marsak 1959). We know today that it is entirely the contrary: the popularizing guise—like the translation (that Fontenelle offers with the same license)—is a critical one, based on deliberative interpretive decisions that are tied to a program. The popularizing guise is thus an appropriation (Niderst 2000). With regard to the second point, which follows from the first, the study of the dissemination of Fontenelle and the textual effects it elicits allows us to take into account the fact that more than one reader of Descartes in the eighteenth century accesses the original text with a bias that has already been influenced by popularization: indeed, such a bias draws attention to what it treats as worthy of attention, leaves in the shadows what it doesn't find of interest, reorganizes the issues and, finally, truncates the arguments.

(p. 482) On the other hand, the history of the work of Fontenelle and of its reception properly exemplifies 1) the fact that our consideration of the landmarks in the history of philosophy is never *neutral*; and 2) that these landmarks (and their effacement) are never *definitive*. Fontenelle is most often cited today only incidentally by way of an introduction to such and such a philosopher or academician he eulogized, giving the impression that what he said always only recorded facts or reported words. But in the eighteenth century Fontenelle was read as a *philosopher*: one knew more then, perhaps, that a borrowed word always says something about the borrower. Thus, for example, Naigeon does not hesitate to devote twenty-three pages of his volumes from the *Encyclopédie méthodique* (Naigeon 1791) on the "Philosophy of the ancients and moderns" to the "Philosophy of Fontenelle"; Grimm, in his *Literary Correspondence*, writes for his part that "Les Mondes, l'Histoire des Oracles, and several other works of M. de Fontenelle, have become classic books […] the philosophical spirit, today so generally widespread, owes its first progress to M. de Fontenelle" (Grimm 1829–31: II.89–90). However, in the nineteenth century Fontenelle became more a literary object: beyond some remarks scattered here and there among the rare philosophers or academicians,[1] it is mostly in Sainte-Beuve that one finds a development of Fontenelle. The twentieth century might have let him sink into oblivion,[2] were it not for the growing interest in clandestine literature and libertinage, for a history of science and history of ideas that takes into account the issues of diffusion and reception. Yet recently Fontenelle has reappeared as a landmark deserving the attention of scholars; and at the same time, there is a realization that his dismissal could be due to the fact that his work did not fit the idea of philosophy that prevailed in the nineteenth and twentieth centuries.

From these remarks, we will retain for the remainder of our discussion the fact that Fontenelle's significance for a history of Cartesianism lies in his reading Descartes as a historian-*philosopher*, that is to say, as someone who studies from his own philosophical perspective what he inherits from Descartes, and who does so by defining who is a true heir to his philosophy, in contrast to other appropriations (Schmaltz 2017: 5). In other words, as we will see, the first thing to which Fontenelle attaches himself is a characterization of the philosophical contribution of Descartes and a delimitation of the legitimate uses of this contribution. This produces what we could call a vanguard effect: it will be necessary, in order to be part of the philosophy of the moderns, to be not only Cartesian,

but *this* Cartesian. From this perspective, the second task assigned to Fontenelle—and this is where we get caught in the game of "popularization"—is to constitute Cartesianism as a kind of *philosophia perennis*, that is to say, to show its effects, the (p. 483) merits of this philosophy, by telling the story of its development until the middle of the eighteenth century. What was an event for philosophy gradually becomes an event that concerns the general history of the human mind, that is to say the possible destiny of a process of civilization manifested in the practices related to the development of knowledge. Finally, in a completely surprising way, we will see that the desire to perpetuate Descartes will lead Fontenelle to fight as a reactionary: at the time the scientific community, even in France, is almost entirely won over to Newtonianism, but Fontenelle will continue to defend Descartes, whom everyone now assimilates to a bygone era.

1. Cartesianism at the Vanguard of Modernity

An awareness of the interest and importance of the philosophy of Descartes does not seem to have come to Fontenelle in a manner as abrupt as in the case of the savants for whom he will give eulogies from 1700 to 1740, when he will be the Perpetual Secretary of the Académie royale des sciences in Paris. As has often been noted, in his *Eulogies for the Savants* Fontenelle will use the encounter with the philosophy of Descartes as a *topos* for the intellectual biography of the savants, who, bored by Scholasticism to the point of abandoning a philosophical career, discovered by accident in reading the *Treatise of the World* or the *Principles of Philosophy* all of the richness of the modern philosophy. We will have then a kind of narrative for this, of which the following is probably the most famous example:

> He was 26 years old, and knew Descartes only by name, and by some objections from his philosophical notebooks. He began to leaf through the book, and was struck as by a light that came wholly new to his eyes. He glimpsed a science of which he had no idea, and sensed that it suited him. The scholastic philosophy, which he had had the leisure to know, had not made, towards philosophy in general, the effect of the mere sight of a volume of Descartes: sympathy had not arisen; unison was not present; this philosophy had not appeared to him as a philosophy. He bought the book, read it with eagerness, and perhaps it would be hard to believe, with such effect that he felt the beating of his heart, which sometimes obliged him to interrupt his reading.
>
> (Fontenelle 1990–6: VI.338)

The young Fontenelle, for his part, seems to treat Cartesian thought with a certain flippancy. Far from serving as a remedy for a worldly skepticism that makes philosophy a kind of game without consequence, his Descartes resigns himself to such skepticism. In 1683, in fact, in the *New Dialogues on Death*, Fontenelle introduces a Descartes who has completely despaired of finding the truth, and who declares:

> We have some reason always to be deceived by the promises of the philosophers. [Philosophy] uncovers from time to time some small unimportant truths, that but (p. 484) amuse. As for the substance of philosophy, I admit that this hardly advances. I also believe that we sometimes discover the truth about considerable matters: but the misfortune is that we do not know that we found it.
>
> (Fontenelle 1990–6: I.200)

It is three years later that, giving the impression of an about-face, Fontenelle publishes his *Dialogues on the Plurality of Worlds*, a text that earned him the title of "popularizer" of the philosophy of Descartes. Surely one of the most read texts of Fontenelle—it had more than thirty editions before the end of the eighteenth century, and translations into several languages—the *Dialogues* is emblematic of the practical philosophy of Fontenelle: a work of great finesse, which intertwines depth of vision and lightness of tone, illusory candor and masked subversion, all in the service of a cause that the foreword does not hesitate to divulge, namely, to win over the countess—or, if you prefer, the public—to the party of philosophy. Candor and lightness are the literary devices that suit the views of Fontenelle. The *Dialogues* presents itself as a story of six "nights" in which a philosopher and a countess explore a crazy hypothesis that the sight of a starry sky accidentally led the former to suggest to the latter. The hypothesis, perhaps inherited from the neo-Epicurean tradition, is of course that according to which there could be a plurality of inhabited worlds, which will receive its probability from an exposition of Copernican heliocentrism and its extension in Cartesian cosmography. Profundity and subversion, for their part, come from the fact that the worldly game, with its air of innocence, obscures the real game of the interpretation of the philosophy of Descartes and the consequences that must be drawn from it.

The exercise of popularization thus appears rapidly as a reversal: the countess, in fact, imposes on philosophy an epistemic standard of clarity that prevents one from locking oneself into an abstract and obscure conceptualization. All notions must have referents in common experience or be relegated to the rank of useless extravagances. Also it is the countess who constantly prohibits getting carried away with philosophical language. The lesson is easy to grasp: it concerns the prevention of a Scholastic slide that Fontenelle continually treats as obscure philosophy. More profoundly, it concerns the criterion that confers plausibility on a philosophical proposition: in this matter, as others have shown (Audidière 2015a: 46), the countess does not embody the infantile posture of an uncultivated and perfectible mind offering itself to philosophy, but rather a mind habituated by its literary culture to grasp the degrees of probability. This is why, in this dialogue, she often manages to grasp on the fly a proposal of the philosopher in order to study its applications, deepening the consequences or questioning claims of legitimacy. Far from being beholden to what is said to her, she participates on the same level in philosophical exercise whenever she is given the occasion. All in all, there is in the *Dialogues* not only a philosophy for worldly use, but also a warning to philosophers about the danger of thinking in a vacuum.

The philosopher of the *Dialogues*, it is true, "wins" the countess to philosophy (a gain that is signified in the story by the fact that the countess comes close to quarreling with devotees who are outraged to hear her talk about the hypothesis she has explored). His strategy consists in showing her that the philosophers are forced to a conceptual (p. 485) economy that perfectly matches the norms of intelligibility that she imposes on it. In other words, the countess discovers how, for example, Cartesian mechanism stems from a search for principles small in number and general in application (Rioux-Beaulne 2011: 254), a search that, in a certain way, takes account of the whole history of the human mind. As we will see in the passage that follows, the replacement of one system by another in the history of astronomy is due to the capacity of systems to account for as great a number of phenomena as possible in the simplest possible manner, whereby, as the countess explains, we satisfy the mind and, at the same time, the philosopher assumes, capture the plan of nature.

> When [the Caldeans] had rank'd the Heavens in that manner you tell me, pray, what is the next Question? The next, *said I*, is the disposing of the several parts of the Universe, which the Learned call making a Systeme […] They imagin'd the Earth rested in the Centre of the Universe, while all the Celestial Bodies (which were made for it) took the pains to turn round to give light to it […] But why, *said the Countess*, interrupting me, do you dislike this Systeme? It seems to me very Clear and Intelligible. However, Madam, *said I*, I will make it plainer; for should I give it to you as it came from *Ptolomy* its Author, or from some who have since study'd it, I should fright you […] It is now out of doubt, that *Venus* and *Mercury* turn round the Sun, and not round the Earth, according to the Ancient Systeme, which is now every where exploded … But that which I am going to lay down, will salve all … Methinks, *saith the Countess*, your Philosophy is a kind of Out-cry, where he that offers to do the work cheapest, carries it from all the rest.'Tis very true, *said I*, Nature is a great Houswife, she always makes use of what costs least …
>
> (Fontenelle 1970: I.13–18)

This is a typical example of what an interpretative act such as Fontenelle permits himself can produce: the reception frame of Fontenelle, based on a statement of the history of systems, places entirely in parentheses what, for Descartes, made his philosophy a fundamental event that ruptures history, namely, his foundation of the sciences in a metaphysics that, due to divine veracity, assures to clear and distinct ideas a definitive access to the truth. As such, astronomy, which in Descartes forms part of a systematic whole, is presented as an autonomous subsystem extending the work of countless generations of astronomers. Thus although Descartes was betting on the connection of all parts of philosophy, which is "as a tree, of which the roots are metaphysics, the trunk is physics, and the branches emerging from the trunk are all the other sciences" (*Principles*, AT IXB.14), Fontenelle disconnects the parts, leaving the reader with the impression that the Cartesian revolution is *only* scientific.

It is worth observing that, the same year, Fontenelle publishes anonymously his *Doubts on the physical system of occasional causes*. The *Doubts* in some way tears Descartes away from the occasionalist interpretation of which Malebranche became the most illustrious representative (Beaude 1989). Chapter 2 is particularly interesting since it proposes, even before presenting in order an attempt at a refutation, a "history of occasional causes". This history portrays the theory of occasional causes as a kind of ad hoc fix, disqualifying in a way Descartes's attempt to present his system as a series of (p. 486) rational choices determined by his metaphysics. Fontenelle relates in effect that Descartes invented occasional causes to resolve the problem of the "disproportion" that holds between the *res cogitans* and the *res extensa*. Confronted by the problem of the transmission of motion between bodies, Descartes would have realized that he could apply occasional causes. Malebranche, for his part, would be responsible only for a generalization of their application:

> Such was the increase of occasional causes in physics; they occupied it entirely under Descartes. Father Malebranche came, as great a philosopher and theologian as Descartes was a philosopher, and he extended occasional causes into theology.
>
> (Fontenelle 2015: 178)

The consequence is brilliant irony:

> Thus occasional causes were weak at their birth, invented to meet an urgent need; but little by little the convenience found in them made them be carried infinitely farther than the first necessity demanded.
>
> (Fontenelle 2015: 179)

As the rest of the text will show, the critique of occasionalism is in fact aimed at producing what some commentators have called an *essentialist* version of Cartesian mechanism.[3] According to this version, God has been able to bestow moving force on bodies, and that ensures that everything is explained by the nature of things, rather than by a permanent action of the Creator. Once again, as we can see, Fontenelle applies a criterion of economy: an explanation by that which is the most easy to conceive must always be preferred by philosophers.

Fontenelle feels increasingly pressed to reveal the ins and outs of the reason for this economy as Newtonianism enters France. During his years as secretary of the Académie royale des sciences, he does not cease defending the cause of Cartesian vortices against what he considers to be a return of the occult qualities of the Scholastics within a physics that had, so to speak, been purified (see Schmaltz 2017: 324–8). The opposition to Newton, found most often in remarks scattered throughout the *History of the Académie royale des sciences*—an annual volume that presents a synthesis of work published by academicians during the year and eulogies for those who have died—becomes surprisingly central even in a eulogy that Fontenelle writes for Newton the year of his death, occasioning a reflection on what distinguishes him from Descartes:

> Attraction and the void, apparently banished forever from physics by Descartes, were reintroduced by Newton only slightly disguised [… Descartes] began with what he understood clearly in order to find the cause of what he saw; the other began with what he saw in order to find its cause, be it clear or obscure. The self-evident principles of the first did not always lead him to phenomena such as they (p. 487) are; the phenomena did not always lead the second to principles that are sufficiently evident […] And to save himself from the reproach of having recalled the *occult qualities* of the scholastics, he says that he establishes only qualities which are made *manifest* and very evident by the phenomena. But the truth is that the causes of these qualities are *occult* …
>
> (Fontenelle 1970: IV.23–6)

Newton and Malebranche, in spite of what is true in their respective systems, are reproached for transgressing the limits of what philosophy can legitimately claim. The challenge, in physics, is to reduce the mechanism of nature to the conceivable, in order to eliminate not only any form of arbitrary invention, but also any possibility of attributing occult qualities to matter. To posit God as the unique cause of phenomena, or to attribute to an occult cause the effects that we observe, is to rely on a mind that attributes inexplicable powers to everything. It is back to the premodern mind that posits wonders.

Therefore, we understand that the appropriation and defense of Cartesianism by Fontenelle has a very precise sense: it is not to save a system or a philosophy; it is not to be loyal to the entire approach. As we have seen, Descartes is above all the name of a manner of reasoning, the point of departure for modern philosophy, or again, as Fontenelle says in the *Eulogy for M. Parent*: “He started with Descartes, and with justice, since philosophy started with him” (Fontenelle 1718: 91).

2. “Good” Cartesianism

The metaphysics of Descartes is absent from the *Dialogues*, and what lends itself to an occasionalist reading of his physics is disqualified in the *Doubts*. We could add that Descartes’s physics itself is permanently an object of correction, as shown by the debates that occurred at the Académie des sciences and that Fontenelle summarized rather conscientiously. The question posed is this: what remains of Descartes in this defense of Cartesianism?

The response is two-fold. On the one hand, as we have seen in the closing remarks of the preceding section, Descartes is the name of a shift in philosophical modernity that is recognized above all in the economy of his concepts. On the other hand, and this follows precisely from the way Fontenelle understands this philosophical modernity, Descartes is the inventor of an astronomical theory that must be defended as legitimate *at the risk of regressing to a premodern philosophy*: the theory of vortices.

Let us consider the first of these two aspects. In 1688, when Fontenelle publishes, in the midst of a literary quarrel, his *Discourse on the Ancients and Moderns*, overtly taking the side of the latter, he presents Descartes as a kind of point of rupture:

> Before Descartes, people reasoned with greater accommodation. Previous centuries were lucky to be without him. Descartes was the one, so far as I can tell, who introduced this new method of reasoning, much more valuable than even his philosophy, (p. 488) which is in large part false or uncertain, according to the very rules he taught us. In short there exists now, not only in our works in science and metaphysics but in religion, morals, and criticism as well, a precision and exactitude hardly known before.
>
> (Fontenelle 1970: III/5)

The central point of the remark is clearly that Descartes has imposed a method of reasoning that surpasses his philosophy in value, which is said to be false *according to his own rules*. The sarcasm reaches its height when Fontenelle adds that it is at least *uncertain*, showing how little he cares for all the work of the *Meditations*. That said, his remarks indicate that to follow Descartes is to recapture his method *more* than his philosophy, or even, when necessary, *against* his philosophy. This makes it possible for Fontenelle to distinguish himself from those who have fallen into the error of completely adopting his philosophy because they have not grasped well the requirements of his method—as might well be the case with the occasionalists. It is necessary to distinguish between the philosophy of Descartes and the Cartesian spirit (see Ribard 2004).

The spirit in question is what Fontenelle defines in a text that has become famous, the *Preface on the Utility of Mathematics and Natural Science and on the Works of the Academy of Sciences*, and that he calls this time “geometric”. This spirit is not, properly speaking, the only effect of a geometrization or a mathematization of physics. It is necessary rather to understand it to be a certain use of reason that Descartes certainly had imposed in applying geometry to physics, but that can be “applied” to morals, politics, and eloquence. The terms to define it are “order, clarity, precision and exactitude”. This spirit, says Fontenelle, is pervasive in “good books”; it communicates itself even to those who understand nothing of geometry. The point is that Descartes “sets the tone for his entire century”, in establishing “a new art of reasoning” (Fontenelle 1970: IV/1).

We thus recognize that if Fontenelle first allowed himself to *reduce* the philosophy of Descartes to his results in physics in isolating these from their metaphysical substrate, he extends at the same time the spheres of application to precisely those domains where this metaphysics prevented it from entering. For Descartes, in fact, the clear separation of thinking and extended substances allows for the delimitation of a precise field in which geometry can exercise its authority: it concerns, of course, material nature. This is reflected in the fact that Descartes can maintain that there exists an integral rational explanation proceeding by appeal to the only universal efficient causality that concerns the actual order of nature without including the order of thinking substances, which, as he has shown in the Fourth Meditation, remain free insofar as they are always masters of their

will (AT IXA.45). But the extension of the *esprit géométrique* to domains such as morals, politics, and eloquence show that, for Fontenelle, the setting aside of metaphysics also makes it possible to eliminate the distinction of substance. This has two consequences: the extension of the geometrical spirit is nothing less than the extension of the domain of nature to include the domain of thought (see Marsak's introduction to Fontenelle 1970: lxiii). And what communicates itself under the name of modernity could well be a form of naturalism that Fontenelle places under the patronage of Descartes.

(p. 489) With regard to the first consequence, nothing illustrates it better, as has been shown elsewhere (Audidière and Rioux-Beaulne 2015), than the manner in which Fontenelle transforms the Cartesian "psychology" of error into the "anthropology" of belief. In fact we know how much the argument of the *Discourse on the Method* and the *Meditations* is based on the idea that it is voluntary doubt that distinguishes beliefs inherited from tradition from those endowed with certainty. We also know that the method consists in undertaking to doubt all, until one falls on something that stands up to any test. By means of this, we reach the *cogito*, the existence of God and the principle of divine veracity that will provide a definitive guarantee for the edifice of human knowledge. The central element of this way of considering things is that all knowledge prior to this approach is considered equally flawed because it is not based in any rule of adequate certainty. Thus the discovery of this rule does not rest on an earlier state of knowledge; it constitutes a true rupture in human history. For this reason, it could have occurred at any moment in history, being not the effect of a cause in the order of nature, but rather the result of an act of will. This is why we can speak here of a psychology of error: there is no history of truth according to Descartes, but, so to speak, conversion to an order of truth that the process of the *Meditations* makes possible.

The presentation of Descartes by Fontenelle as a moment of rupture that gave rise to this idea apparently echoes this same idea. Yet an attentive reading of the texts of Fontenelle on oracles and fables, as well as those on science or on human reason, reveals that extending the geometrical spirit does not allow us to think about the future of the human spirit otherwise than through its history (Mazauric 2007: 265). In his writings on superstition, what appears at first is the fact that philosophy has always operated on the same principles, a way of saying that human reason is equal at every moment of its history. Thus the development of a mechanistic philosophy, far from being the product of a metaphysics that makes it possible to define material substance in terms of the attribute of extension, is only the result of an analogy made on the basis of technical discoveries—in other words, it is caused by the previous state of knowledge. Thus Fontenelle writes, in *On the Origins of Myths*:

> This philosophy of the first centuries revolved on a principle so natural that even today our philosophy has none other; that is to say, that we explain unknown natural things by those things we have before our eyes, and that we carry over to natural science those things furnished us by experience. We have not divined, but have discovered by usage, what weights, springs, and levers can do: it is only by

> means of levers, weights, and springs that we make nature act. We have always portrayed the unknown to ourselves in terms of what we already know.
>
> (Fontenelle 1970: IV/35–6)

Following this schema, therefore, the philosophy of Descartes is, literally, an effect of the socio-historical conditions in which the human mind is situated. This is why we can say that there is here not the psychology of error, but the anthropology of belief: what interests Fontenelle is what he will call elsewhere a “natural motion of credence”, a “law of thought”—that is, a rule by which the mind gives itself an axiom “not founded on real (p. 490) evidence, that is, on truth, but on the impossibility of conceiving things otherwise” (Fontenelle 1970: IV/15). In other words, we have here a law that explains how the mind naturally transitions from a belief to the recognition of its falsity, to another belief also to be recognized as false, and so on indefinitely (Armand 2008–9: 326). We thus understand that if, for Descartes, knowledge of the laws of motion and of the nature of material substance could make it possible to constitute a cosmogenesis, for Fontenelle, an application of this way of reasoning to the human mind could imply a genealogy of the states of mind:

> Someone with a good mind, in simply considering human nature, would guess all past history and all history to come, without having even heard of any event. He would say: human nature is composed of ignorance, of credulity, of vanity, or ambition, of malice, of a little good sense and probity above all that, but the dose is very small compared to the other ingredients. Thus these people will make an infinity of ridiculous results, and a very small number of sensible ones; they will often fight with each other, and then will make peace treaties nearly always in bad faith; the more powerful will oppress the weaker, and will try to give their oppressions the appearance of justice, etc. After which, if this man will want to examine all truths that can produce these general principles, and play with them, so to speak, in all possible ways, he will imagine in detail an infinity of facts, that acually happened, or wholly similar to those that happened.
>
> (Fontenelle 2015: 127)[4]

It is evidently by this route that we reach our second consequence, which is that, for Fontenelle, the legacy of Descartes could be an integral naturalism that he himself would have denied. If it is true that we are above all the inheritors of a “wholly mechanical” way of reasoning, which results from an “auction” aimed at optimal conceptual economy, then, Fontenelle seems to judge, modernity is manifested in the application of this method to ever more distant fields (Schmaltz 2017: 99). Not that it is a matter of geometrizing eloquence, morals, or politics. It is simply that this precision and economy must be allowed to penetrate all the “productions of mind”, which makes it possible to repel the superstition and the marvels to which the mind is attached too easily, but which ensures also the establishment of a literary production based on a “science of the heart”, of which one finds fragments, for instance, in his *Reflections on poetry*.

What is imposed under the name of modernity is in a way a normativity that rules what Fontenelle calls “metaphysics”, but lending it a sense that will be that of the eighteenth century (Girard, Leduc, and Rioux-Beaulne 2016: 7–14), namely the reflexive work of clarifying concerns that belong to natural languages, but that are sometimes manipulated blindly (Audidière 2015b: 400). Far from claiming to use metaphysics as a fundamental power that confers certainty on the work of the mind, Fontenelle invents the idea that the highest philosophy is above all a critical way of thinking that immanently (p. 491) accompanies the work of the mind in all spheres of its activity. This signifies that modern philosophy consists in a new order of expression governing the use of terms according to an epistemic requirement that Fontenelle considers to be present in Descartes when he is at his best. This gives the emergence of Cartesianism the status of an event that concerns the entire process of civilization.

3. Cartesianism as Reactionary

The publication in 1752 of the *Theory of Cartesian Vortices* appears to be a true anachronism: in the middle of the eighteenth century, such an effort seems to be completely useless and outdated. We thus have the right to ask if this is not the fad of a man who is no longer of his own time, and all the more because he most strongly recommended that we think as Cartesians against Descartes himself.

To understand—without needing to justify—this persistence in defending the “system of vortices”, it is necessary to return to the normativity that Fontenelle claims to draw from a reflection on the progress of the human mind. This normativity is initially exercised by way of an appeal to the clarity and fertility of concepts. What will be considered to meet such a requirement is a principle so general that it alone explains a multitude of effects. But the generality of a principle certainly is not sufficient to make it clear, otherwise Newtonian attraction would be suitable. It is necessary—and this is the lesson of Descartes—that such a principle account for phenomena in a manner that conforms to human reason itself. Not because human reason includes a guarantee of certitude—we have said that Fontenelle sets aside completely metaphysics in the Cartesian sense—but for the simple reason that it is the only way for the mind to avoid going astray. Thus as we see from the redaction of the *History of the Académie royale des sciences* of 1700, Fontenelle shows that the challenge is not the adequacy of the order of knowledge to that of nature, but rather—and this half a century before the *Encyclopedia*—the organization of knowledge according to the progress of the mind itself. In a commentary on the method developed by Tournefort of classifying plants, Fontenelle writes:

> Since it is not exactly a question in all of this to follow or imitate nature, which does not trouble itself to form a system, but only to establish an arbitrary order that facilitates the knowledge of plants, it is not so much reasoning to prove the goodness of a method as it is the convenience, the clarity, and perhaps also the agreeableness that will be found there, and it is on these principles that the public can judge M. de Tournefort.

> (Fontenelle 1761: 73–4)

The difficulty posed by the “return” of attraction is that it is a fad that has the danger of habituating us to returning to a premodern way of philosophizing. To attack it is, for (p. 492) Fontenelle, to save a modernity on the march, but one that is fragile and always susceptible to being put on hold. This explains a certain violence of tone in the following:

> If the Cartesian system is sufficiently established, at least in its principal points, we can be sure of easily refuting the Newtonian system; for that system is based essentially on attraction, a very obscure and very contestable principle, whereas the Cartesian system is founded only on purely mechanical principles which are admitted by everyone. But Newtonianism has become quite fashionable recently, for we find its adherents even among those who think, and it has assumed so much authority or popularity that it warrants direct attack upon all its forms.
>
> (Fontenelle 1970: IV.7)

The issue thus concerns the conceptualization itself (Pépin 2008, 2013)—besides, Fontenelle formulates his theory of vortices in terms that admit all the empirical discoveries that have been made for a century, including those of the Newtonians. This is why the critique of Newton appears in the “Reflections on Attraction” that serves as an afterword. The discussion thus strangely evokes the one that took place between Leibniz and the Cartesians and between Leibniz and Clarke. It is a question every time to show that the Newtonian universe is filled with contradictions that make it unsatisfactory from the point of view of reason. We can thus reduce the Fontenellian critique of Newtonianism in the name of a principled Cartesianism under four main headings:

> **1)** The clarity of the principle of transmission of motion by impulse is eminently greater than that of the law of gravitation, for the good and simple reason that we “see” that if two bodies come into contact, “something” must happen, whereas when two bodies are separated, one does not “see” that they must attract (Fontenelle 1970: IV.8). Fontenelle is entirely aware that impenetrability can be underdetermined—that is what Malebranche had shown to remove all efficacy in matter. The idea seems to be simply that it appears contrary to reason that two bodies occupy the same place, and thus their contact must produce an effect in one or the other or both of these bodies.
> **2)** To someone who would argue that the cause of motion being in God and not in matter alone, the latter could just as easily have been the cause of attraction, Fontenelle reiterates that in adopting impulsion as cause, God has chosen to remain with the (conceivable) nature of things. In the system of attraction, “the will of God here bears no relation to their nature and would figure purely arbitrarily, which is altogether contrary to the regularity of the universe” (Fontenelle 1970: IV.8). And we know where the slippery slope leads that makes this arbitrary result possible: why not say that God could have given thought to matter?
> **3)** Moreover, Fontenelle mobilizes a kind of principle of sufficiency: recourse to an essential property of the subject, though not perceptible, could for all practical pur-

poses be admissible if there were no more economical solution. Thus, (p. 493) according to Fontenelle: “In order to accept these essential properties that have nothing to do with essences as we understand them, we would have to be overwhelmed by phenomena that would be inexplicable without their help; and even then they would not serve as explanation” (Fontenelle 1970: IV.9).

4) Finally, Fontenelle offers a set of objections more specifically related to Newtonian physics properly speaking. These objections aim to show that despite the mathematical rigor of Newton’s work, the conceptualization on which it is founded leads to paradoxical consequences. Thus, the fact that attraction is related to mass and distance means that the attraction uniting two bodies that touch each other would be infinite; several chemical phenomena cannot be explained by the “law of squares”, which removes its universal scope; the phenomena of attraction seem inapplicable to the relation between solid and fluid bodies; if we place three bodies in a straight line, it is difficult to see how attraction acts on the bodies at the ends; finally, and most of all, the physics of Newton is based on the idea that there is a vacuum in nature, which leads to a great number of conceptual contradictions.

In the final analysis, Newton and his followers rely on the principle that certain determinations of nature escape all comprehension, which returns to the refusal to confer complete autonomy on philosophy. For Fontenelle, the promise of Cartesian thought was precisely that of an emancipation of *human* reason that henceforth felt it legitimate to use its scheme of intelligibility as a norm of truth. In a sense, the *Theory of Cartesian Vortices* is the start not of a conquering reason, but of an enlightening one, which refuses to give itself a priori areas of darkness. The rescuing enterprise in which Fontenelle engages appears consequently less frivolous, since it is the legitimacy of the work of reason that, for him, is in question.

4. Conclusion

We have said that Fontenelle fashions a Cartesianism on the basis of a determined and decidedly selective interpretation of the work of Descartes. There is an operation of dismemberment: the geometization of physics is torn from the metaphysical framework on which it was based, and made autonomous. But this gives rise to a way of reasoning—the extension of which becomes possible due to the bracketing of the metaphysics that gave rise to its application—that can be used against Descartes himself. This allows for the identification of Cartesianism and modernity in a sense that puts the spirit above the letter. This identification is so strong that Fontenelle, in an untimely manner, seeks to rehabilitate Cartesian vortices close to the time of the generation of encyclopedists who have definitively turned their back on it.

Is this a lack of respect for a titular figure? On the contrary, one could say: in line with this Fontenellian manner of discriminating in an original text what one must conserve (p. 494) to appropriate it, it is in the very words of Fontenelle that the references to Descartes henceforth pass to the philosophers of the Enlightenment. Though this is not

the place to offer a study of the reception of Fontenelle, as we announced in the introduction it is evident that this reception plays a decisive role in the interpretation of the "Descartes moment". For proof we need only these remarks from the *Preliminary Discourse to the Encyclopedia*, an emblematic text if any is, that was published one year prior to Fontenelle's *Theory of Cartesian Vortices*, and responds to it in advance, so to speak, in continuing historicization and dismemberment:

> We can view Descartes as geometer or as philosopher. Mathematics, which he seems to have considered lightly, nevertheless today constitutes the most solid and the least contested part of his glory […] As philosopher, he was perhaps equally great, but he was not so fortunate […] His metaphysics, as ingenious and new as his physics, suffered virtually the same fate […] If he concluded by believing he could explain everything, he at least began by doubting everything, and the arms which we use to combat him belong to him no less because we turn them against him.
>
> (D'Alembert 1963: 78–80)

By this we see that it is a Cartesianism "à la Fontenelle" that allows his successors to use it with a certain freedom.

Translation by Tad Schmaltz

References

Alembert, Jean le Rond d' (1963), *Preliminary Discourse to the Encyclopedia of Diderot*, trans. R. N. Schwab and W. E. Rex. Indianapolis: Bobbs-Merrill.

Armand, Guilhem (2008–9), "Science et politique chez Fontenelle: une dynamique de l'affranchissement", *Revue Fontenelle* 6–7: 325–35.

Audidière, Sophie (2015a), "Fontenelle ou la tendresse philosophe", in Bernard Fontenelle, *Digression sur les Anciens et les Modernes et autres textes*, ed. Sophie Audidière et al. Paris: Classiques Garnier, 13–58.

Audidière, Sophie (2015b), "La Lettre galante et l'esprit géométrique. Expression métaphysique et métaphysique des langues, ou la philosophie du discours de Fontenelle", *Archives de Philosophie* 78: 399–416.

Audidière, Sophie, and Mitia Rioux-Beaulne (2015), " 'Savoir pourquoi': Métaphysique du jugement et histoire de l'esprit modernes chez Fontenelle", in Christelle Bahier-Porte and Claudine Poulouin (eds.), *Écrire et penser en moderne*. Paris: Champion, 229–49.

Beaude, Jean (1989), "Fontenelle et Malebranche", in A. Niderst (ed.), *Fontenelle: Actes du colloque tenu à Rouen du 6 au 10 octobre 1987*. Paris: Presses Universitaires de France, 369–78.

Carré, Jean-Raoul (1932), *La Philosophie de Fontenelle ou le sourire de la raison*. Paris: Alcan.

Downing, Lisa (2005), "Occasionalism and Strict Mechanism: Malebranche, Berkeley, Fontenelle", in Christia Mercer and Eileen O'Neill (eds.), *Early Modern Philosophy: Mind, Matter, and Metaphysics*. Oxford University Press, 206–30.

Flourens, Pierre (1847), *Fontenelle ou De la philosophie moderne relativement aux sciences physiques*. Paris: Paulin.

(p. 495) Fontenelle, Bernard le Bovier de (1718), *Histoire de l'Académie royale des sciences, année 1716*. Paris: Imprimerie royale.

Fontenelle, Bernard le Bovier de (1761), *Histoire de l'Académie royale des sciences, année 1700, seconde édition revue et corrigée*. Paris: G. Martin, J.-B. Coignard, and H.-L. Guérin.

Fontenelle, Bernard le Bovier de (1970), *The Achievement of Bernard le Bovier de Fontenelle*, trans. L. M. Marsak. New York: Johnson Reprint Corporation.

Fontenelle, Bernard le Bovier de (1990–6), *Œuvres complètes*, ed. A. Niderst, 9 vols. Paris: Fayard.

Fontenelle, Bernard le Bovier de (2015), *Digression sur les Anciens et les Modernes et autres textes*, ed. Sophie Audidière et al. Paris: Classiques Garnier.

Girard, Pierre, Christian Leduc, and Mitia Rioux-Beaulne (2016), *Les Métaphysiques des Lumières*. Paris: Classiques Garnier.

Grimm, Melchior (1829–31), *Correspondance littéraire de Grimm et de Diderot depuis 1753 jusqu'en 1790. Nouvelle édition*. Paris: Furne.

Maigron, Louis (1906), *Fontenelle: l'homme, l'œuvre, l'influence*. Paris: Plon.

Marsak, Leonard M. (1959), "Cartesianism in Fontenelle and French Science, 1686–1752", *Isis* 50: 51–60.

Mazauric, Simone (2007), *Fontenelle ou l'invention de l'histoire des sciences à l'Aube des Lumières*. Paris: Fayard.

Mullet, Isabelle (2011), *Fontenelle ou La Machine perspectiviste*. Paris: Champion.

Naigeon, Jacques André (1791), *Encyclopédie méthodique: philosophie ancienne et moderne*. Paris: Panckoucke.

Niderst, Alain (1972), *Fontenelle à la recherche de lui-même*. Paris: Nizet.

Niderst, Alain (2000), “Le libertinage dans les œuvres de vulgarisation scientifique de Fontenelle”, in Alain Mothu et al. (eds.), *Révolution scientifique et libertinage*. Turnhout: Brepols, 287–94.

Pépin, François (2008), “Fontenelle, les Lumières et le clair-obscur: quel éclairage pour le progrès de la connaissance?”, *Revue Fontenelle* 5: 37–56.

Pépin, François (2013), “Être cartésien en historien des sciences: Fontenelle”, in Delphine Kolesnik-Antoine (ed.), *Qu’est-ce qu’être cartésien?* Lyon: ENS Editions, 465–84.

Ribard, D. (2004), “Philosophie et non-philosophie: Fontenelle et Descartes”, *Revue Fontenelle* 2: 55–68.

Rioux-Beaulne, Mitia (2011), “Ne livrer que la moitié de son esprit: Fontenelle devant Descartes”, *Corpus: Revue de philosophie* 61: 241–62.

Schmaltz, Tad M. (2008), “Occasionalism and Mechanism: Fontenelle’s Objections to Malebranche”, *British Journal for the History of Philosophy* 16: 293–313.

Schmaltz, Tad M. (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. New York: Oxford University Press.

Notes:

([1]) It is noteworthy that in 1847, Pierre Flourens, a member of the Académie française and of the Académie des sciences recognized for his founding work in the neurosciences, published a book entitled *Fontenelle ou De la philosophie moderne relativement aux sciences physiques*, of which the first paragraph is at least revealing: “Modern philosophy begins with Bacon, with Galileo, with Descartes; it continues with Leibniz, with Newton; it finally is popularized by Fontenelle, by d’Alembert, by Voltaire” (Flourens 1847: 1).

([2]) To be fair, it is necessary to recall that Fontenelle was the object of some major studies that have protected him from complete oblivion, such as those of Maigron (1906), Carré (1932), Niderst (1972), Mazauric (2007), and Mullet (2011).

([3]) A debate took place in the 2000s about the value of Fontenelle’s critique: see Downing 2005 and Schmaltz 2008; Schmaltz 2017: 217–18 returns to this question.

([4]) It is striking to see the proximity of these terms to those used in the *Principles of Philosophy* by Descartes (AT IXB.122–6) in his discussion of the supposition that the world orders itself merely by means of the application of the laws of motion to matter.

Mitia Rioux-Beaulne

University of Ottawa

Cartesianism in Britain

Sarah Hutton

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Abstract and Keywords

This chapter provides a broad picture of the reception of Descartes's philosophy in England and Scotland, from the 1630s through to the post-Newtonian attacks on Cartesian physics and cosmology at the end of the seventeenth century. It starts with an overview of the earliest encounters between Britons and Descartes, the reception of Cartesianism in British universities, translations into English, and British editions of Cartesian works. It then discusses some of the individual responses to Cartesianism which are not discussed elsewhere in this Handbook, among them the Cavendish circle (including Margaret Cavendish), Le Grand, Barrow, Boyle, Charleton, Conway, Cudworth, and Clarke.

Keywords: Great Britain, Boyle, Cavendish, Charleton, Clarke, Conway, Cudworth, Le Grand

(p. 496) THE English Lincolnshire town of Grantham is not a place that readily springs to mind in connection with the British reception of Cartesianism. Yet its two most distinguished sons, Henry More and Isaac Newton, were highly influential figures in the early modern reception of Descartes's philosophy: More, who is credited with coining the term 'Cartesianism', was one of the first to advocate the study of Descartes's philosophy, and would later become an influential critic of Descartes. And having encountered Descartes's mathematical philosophy during his student years at mid-seventeenth-century Cambridge, Newton was instrumental in ensuring the demise of Cartesianism after the publication of his own mathematical natural philosophy.

More and Newton are not the whole story of the reception of Descartes in Britain, of course. But they serve as symbolic "bookends" for the British reception of Descartes in the seventeenth century. I do not mean to suggest that Henry More was the first *outre Manche* to taken an interest in Cartesianism, or that Descartes disappears from debates after the publication of Newton's *Principia mathematica* in 1687. On the contrary, as has become increasingly clear from scholarly work in the last thirty years, Britons were quick to take an interest in the new French philosophy; Descartes's writings were read and dis-

cussed from an early date; the impact of Cartesianism was pervasive; and Cartesianism continued to fuel debate well into the eighteenth century.[1]

A good deal of the early interest in Descartes was in Cartesian mathematics and medicine, but British philosophers, from Herbert of Cherbury and Hobbes, through to More, Cudworth, Boyle, Locke, Carmichael, and Berkeley, were all familiar with Descartes's philosophy. Between them, More and Newton illustrate the fact that the reception of Descartes was not a straightforward matter of substituting new philosophy (Cartesianism) for old (Aristotelianism), but involved critical engagement with (p. 497) Cartesianism, some of it polemical, much of it creative, over a long period. Although this produced no school of British Cartesians as such, from the 1650s Descartes's philosophy increasingly set the philosophical agenda even for those who did not adopt it. By the time Newton was an undergraduate, Descartes had become an important point of reference for most British philosophers, as a way in to philosophy for some, but also as the focus of critique. By the time Newton was preparing his *Principia mathematica* for publication, Descartes was established as a key figure in the philosophical landscape, and therefore an obvious target for Newton. The More–Newton axis also highlights the fact that the aspect of his philosophy most widely embraced in the British reception of Descartes was Cartesian physics. His "mathematical method" and epistemology appealed to many. By contrast, Cartesian metaphysics was always controversial. This chapter provides a broad picture of the reception of Descartes's philosophy in Britain. Commencing with an overview of the earliest interest in Descartes and the reception of Cartesianism in British universities, it will discuss some individual responses to Cartesianism not discussed elsewhere in this Handbook, among them Le Grand, Barrow, Boyle, Charleton, Cavendish, Conway, Cudworth, and Clarke.

Initially, Descartes's philosophy excited great interest in Britain, but its reception as a whole was a critical one. Attitudes to Descartes changed over time, often influenced by outside factors. At first Cartesianism was welcomed by many as a new philosophical alternative to the Aristotelianism which dominated academic philosophy. Part of its appeal was its refreshingly new "mathematical method", Descartes's anti-scepticism, and his version of the "mechanical philosophy" which offered a unified physics deduced from a few basic principles, governed by a few simple laws, consistent with the observable phenomena of nature.

But Cartesianism was never adopted wholesale. There were reservations from the start and disenchantment set in as these accumulated. Many of the points at issue were the same as in the European reception. For obvious reasons, transubstantiation was not one of them, and Protestants did not have to contend with the implications of placing Descartes on the Papal Index. Religious concerns did play a part, but debates largely centred around the value of Cartesianism in religious apologetics and natural theology. At first Cartesianism was regarded as compatible with the fundamentals of religious belief (the existence of God and of immaterial souls), but his radical separation of soul and body, and his repudiation of final causes disconcerted would-be admirers, fuelling fears that his philosophy in fact posed a danger to religion. These fears were exacerbated by the per-

ception that Cartesianism had opened the way for the more dangerous philosophies of Hobbes and Spinoza. Other objections included Descartes's failure to explain the interaction of soul (mind) and body, his making the pineal gland the seat of the soul, his mechanistic conception of animals and other life forms, methodological doubt, his metaphysical arguments for the existence of God, and his overconfidence in mathematical reasoning. In natural philosophy, points at issue include the extent of the universe, whether the world is a plenum, and his theory of the vortical motion of the heavenly bodies, by which he tried to reconcile the pre-Copernican geostatic universe with heliocentrism. It is striking that some of the most stringent criticism of Descartes (p. 498) comes from those who thought Descartes was not true to his own principles. Such was the case with Henry More, for instance, many of whose criticisms were incorporated by Pierre Daniel Huet in his *Philosophiae cartesianae censura* [*Censure of the Cartesian Philosophy*]. Nevertheless, there were those like Edward Stillingfleet, who initially defended Descartes against charges of atheism, saying that his philosophy had been "abused" by "persons *Atheistically* disposed" (Stillingfleet 1662: 466). Some of Descartes's strongest philosophical critics were heavily influenced by him, even when their own philosophy differed from his in fundamentals. This is particularly true of Clarke and Cudworth.

Many were, like Locke, drawn to philosophy by reading Descartes. This was particularly true in the case of the few women philosophers of the period, for whom philosophy was made accessible by the vernacular turn led by Descartes's choice of his native French for his philosophical writings and his direct appeal to readers without a formal academic training. His claim that his philosophy required no prerequisite besides common sense opened up philosophy to non-academic audiences. As the Cartesian Antoine Le Grand (or his translator) pointed out in 1694 when justifying the translation of his Latin writings into English, use of the vernacular was especially advantageous for women:

> the most complaisant French Authors generally Print their Philosophical Books in their own Language, by which the French Ladies, to the Glory of their Sex, have arrived to a great perfection of Knowledge; in which extraordinary Accomplishments, being able to discourse of the Heavens, the Motion of the Planets, and the Nature and Causes of Mundane Things, &c. beside the Improvement of Virtue, they have elevated their Conversation above the Common Rate of Feminine Eloquence.
>
> (Le Grand 1694: Sig. A2)

The English women philosophers who benefited from this vernacular turn in philosophy were Anne Conway, Damaris Masham, Mary Astell, and Margaret Cavendish. Masham and Astell probably read Descartes in French. Conway originally studied Descartes in a translation made for her by Henry More. Cavendish, too, had access to English translations. Although none of these women ended up as Cartesians, Descartes's philosophy served all of them as a propaedeutic to philosophy (Broad 2003; Hutton 2005).

1. Earliest Interest

In his lifetime, Descartes attracted the interest of Britons abroad, some of whom had direct contact with him. Such contacts were fostered by intellectual networks such as those of Marin Mersenne in Paris and his counterpart, Samuel Hartlib, in London. They included James I’s ambassador in Paris, Edward Herbert, and Herbert’s secretary, William Boswell (later ambassador in The Hague). Through the good offices of Mersenne, Herbert and Descartes exchanged books: Descartes sent him a copy of the *Meditations* to reciprocate Herbert’s gift of a copy of his *De veritate* in 1639 (of which Descartes wrote a critique). Herbert is said to have begun a translation of Descartes (no longer extant). (p. 499) It was through Mersenne and Hartlib that the mathematician John Pell had contact with Descartes from as early as 1638. Pell made a translation of the *Discours* (now lost), and Descartes expressed a favourable opinion of Pell’s 1647 attack on Longomontanus’s attempt to square the circle sent him via Mersenne (Pell 2005). Two other members of Hartlib’s inner circle in London to discuss Descartes were Theodor Haak and Joachim Hübner (Pell 2005). Samuel Hartlib was instrumental in persuading More to write to Descartes, probably through the good offices of another early convert to Cartesianism, John Hall.

The most significant group among Descartes’s early English contacts was the circle of Sir Charles Cavendish and his brother, William Cavendish, Marquess (later Duke) of Newcastle, which included Thomas Hobbes. As significant patrons of learning, the Cavendishes might have had a greater role in promoting Cartesianism in England had their lives not been disrupted by civil war. On the other hand, as Royalist exiles they had greater opportunity for direct contact with Descartes and Cartesian circles. The Cavendish brothers were well connected with members of both English and French intellectual circles who shared their interests in mathematics and mechanics. They are known to have acted as intermediaries between members of their own Welbeck circle (Thomas Payne, Walter Warner, and John Pell) and the French intellectual circles of Mydorge and Mersenne, inter alia disseminating Cartesian texts. Their names appear in Descartes’s correspondence from 1640 onwards. Mersenne and Sir Charles Cavendish discuss Descartes in their correspondence. William Cavendish corresponded directly with Descartes but only three of these letters survive (from Descartes 1645–6). These discuss health, animal machines, and animal souls, Descartes arguing that absence of language and hope is evidence that animals do not have souls (minds) as human beings do, and that to attribute thought to animals is to attribute immortal souls to them, an idea that is plainly false in the case of lower animals like oysters.

Besides Hobbes, other members of the Royalist diaspora who encountered Descartes were Sir Kenelm Digby (see below), Bishop Robert Creighton, and John Allsop (former chaplain to Archbishop William Laud). Allsop knew Descartes personally (Nicolson 1929), while Creighton was a friend of Regius and spent time in Stockholm at the same time as Descartes.

Descartes's writings were circulating in Britain from the 1640s, in both manuscript and print. The full extent of the circulation of manuscripts has yet to be established, but European editions of Descartes's works were circulating in Britain from an early date, often thanks to the good offices of expatriate intermediaries such as Sir William Boswell, Sir Kenelm Digby, and William Cavendish. Digby sent Hobbes a copy of the *Discourse* in 1637 (Hobbes 1994); Cavendish sent copies of Descartes's writings to Thomas Payne, as they were published. He also sent a copy of the *Passions of the Soul* to Robert Creighton in 1653 (Semler 2012) and may have been responsible for supplying Bishop Brian Duppa with a copy of the same. The first work by Descartes to be translated into English was *Discours de la méthode*, which appeared in 1649, followed by *The Passions of the Soule* in 1650.[2] (p. 500) The 1660s saw English printings of individual works in Latin: *Meditationes de prima philosophia* and *De methodo* (1664), his letters (1668), while Henry More's correspondence with him was published in 1662. A Latin version of the *Discourse* was printed in Cambridge in 1668. An English translation of the *Meditations* by William Molyneux appeared in 1680.[3] Cartesianism was also disseminated by textbooks such as Adriaan Heereboord's *Philosophiae naturalis*, originally published in Leiden in 1654, which was printed in England for university use. Another important Cartesian text in use in universities was the Latin translation of Rohault's *Traité de physique* (see Section 3, "Le Grand").

2. Descartes in the Universities

One measure of the reception of Descartes's philosophy is its take-up in the universities. Aside from the well-known case of Henry More, interest in Cartesianism in university circles in both England and Scotland began early on. Although the official statutes remained firmly Aristotelian, individual tutors had some latitude in what they actually taught, and there is evidence that Cartesian philosophy was already read and studied in the 1640s when Descartes started to appear on student reading lists. This does not mean that Cartesianism was widely taught, or that it was unopposed: one indication being John Webster's *Academiarum examen* (1653), which urged reform of the official curriculum along Cartesian lines. However, it is clear from the reaction to Webster by Oxonians John Wilkins and Seth Ward, who objected to his insinuations that Cartesianism was not taught at Oxford, when the "new philosophy" was already being studied there. In his revised version of the "Directions" originally written by Richard Holdsworth for his students at Emmanuel College in the 1640s, Joshua Barnes added Descartes's *Météores* and *De passionibus* to the list of prescribed reading, as well as Cartesian authors like Le Grand, Régis, and Rohault (Hutton 2015). Cartesian natural philosophy gained more prominence from the 1660s. Cartesian logic, as represented by the so-called Port-Royal logic, was quickly adopted in universities, with a Latin edition, *Logica, sive ars cogitandi* (1674), and an English translation, *Logic or the Art of Thinking* (1685), to meet the demand.[4] The Port-Royal logic was the logic text of choice for Gershom Carmichael in Glasgow, who commended it as "the best Logick that I know extant under the name of Logick" (Carmichael 2002: 380).[5] Another source for Cartesian logic was Antoine Le Grand's *Institutio philosophiae* (1672).

John Aubrey and Joseph Glanvill studied Descartes at Oxford in the 1650s, as did Robert Hooke. Cambridge readers of Descartes in the 1640s included John Hall, the future Archbishop of Canterbury William Sancroft, and the Cambridge Platonist John (p. 501) Smith (1618–52), mathematics lecturer at Queens' College, who owned five Descartes texts, listed in his 1652 bequest to Queens' College, including: *De passionibus animae, Principia philosophiae, De musica*, and *Geometria*. More too read Descartes's *Principia philosophiae* before 1646, as did Cudworth (Nicolson 1929; Sailor 1962; Feingold 1997). The Cambridge mathematician Isaac Barrow (1652–66), Newton's predecessor in the Lucasian chair of mathematics, admired Descartes as a mathematician, having developed an interest in Cartesianism in the 1650s. Barrow's friend, the mathematician Gilbert Clerke (1626–97), fellow of Sidney Sussex College, was another Cambridge admirer of Descartes, who apparently claimed credit for introducing the teaching of mathematics and of the new (Cartesian) philosophy at Cambridge.

The reception of Descartes in Scottish universities bears similarities with Oxford and Cambridge, but there are also important differences. The Scottish practice of publishing student graduation theses is a useful historical resource for gauging what individual regents (tutors) were teaching. Their brevity, however, makes it difficult to reconstruct arguments in any detail. From these it is clear that in Scotland many of the university teachers of the period were receptive to Cartesianism. The first graduation theses to mention Descartes are the 1654 *Theses philosophicae* of Andrew Cant of Marischal College, Aberdeen. Henry Scougal (1650–78) is credited with being the first regent at King's College, Aberdeen, to base his teaching on Cartesian principles. William Blair of Glasgow makes favourable mention of Descartes in 1665, quoting Henry More's *Immortality of the Soul*. His 1677 lectures cite Descartes as well as More, Clauberg, and Le Grand. In 1680–1 Andrew Massie (Edinburgh) commended Cartesian epistemology: "for a solid reliable method of acquiring knowledge of things, we know of none more deserving of praise than that established by Descartes". In his 1687–8 Edinburgh lectures on logic Herbert Kennedy praised Descartes as "that supreme glory of France" (Gellera 2015; Shepherd 1975: 68).

Scottish awareness of Descartes was probably also fostered by the strong links between Scottish universities and universities in Northern Europe, especially the Netherlands. It was common practice for Scottish students to head to Europe, especially the Netherlands, to complete their studies. Many Scots ended up teaching at universities such as Leiden and Amsterdam. As a result some were close to the action in the Dutch disputes about Descartes during the 1640s. This is certainly the case with expatriate Gilbert Jack, who taught at Leiden; some of Jack's pupils participated in the Dutch disputes about Cartesianism, among them the anti-Cartesian Gisbert Voetius and pro-Cartesians Henricus Reneri (Henri Regnier) and Abraham Heidanus.

Recently Giovanni Gellera has argued that Scottish reception of Cartesianism was facilitated within the framework of the Reformed Scholastic philosophy taught at the Scottish universities. Noting a general absence of public debates around the philosophy of Descartes in Scotland in the second half of the seventeenth century, he argues that Carte-

sianism was regarded less as *new* philosophy, but rather as “an innovation within the same philosophical tradition” (Gellera 2015: 196). In respect of Cartesian dualism, matter theory, philosophical method, and the relationship between philosophy and theology, the Scottish regents considered Descartes as a Scottish philosopher. Gellera (p. 502) goes further to claim that Scotland was the first country where the teaching of philosophy was predominantly in a Cartesian manner.

The take-up of Descartes in British universities did not go unopposed. Anti-Cartesians at Cambridge include Theophilus Dillingham, Master of Emmanuel College, and John Covel, who in 1663 delivered an anti-Cartesian MA oration (Feingold 1990: 26, 278). In 1668, the vice-chancellor of Cambridge, Edmund Boldero, proscribed the Cartesian disputations at the university (Gascoigne 1989). The querulous Oxonian, Samuel Parker, set a hostile tone in attacking Cartesianism as atheistic. His *Tentamina physico-theologica de Deo* of 1665 draws on Gassendi to attack Descartes’s epistemology, rejection of final causes, and proof of the existence of God—charges which he recapitulates in his *Disputationes de Deo* (1678).

At Scottish universities, opposition to Cartesianism is reflected in graduation theses and lecture notes, for example those of Robert Baillie at Glasgow and Robert Forbes of King’s College Aberdeen. Forbes’s logic theses of 1680 attempted to defend traditional philosophy against Cartesian novelties. Forbes critiques not just Descartes, but also the pro-Cartesian Dutch theologian, Christopher Wittich, which indicates that he was aware of the Leiden disputes surrounding Cartesianism (Shepherd 1975: 139). Anti-Cartesian textbooks like those of Johannes Schuler (d. 1676) were published in Cambridge for university use.[6]

3. Le Grand

Although Descartes had many British admirers, he had no self-identified British disciples. An exception is Antoine Le Grand (1629–99), who was not, in fact, British, but a French Franciscan resident in England, where he was employed as a tutor in Catholic families.[7] Le Grand was Descartes’s most consistent advocate in late seventeenth-century Britain and published most of his Cartesian writings in London. He was not, however, an original thinker. Having initially published on Stoic and Epicurean ethics, he devoted most of his published writings to expounding Cartesian philosophy—hence his sobriquet, “the Abbreviator”. His *Philosophia veterum e mente Renati Descartes, more scholastico breviter digesta* (1671) attempts a convergence between theories of the passions of Seneca, Epicurus, and Descartes. The following year, encouraged by its favourable reception, particularly at Cambridge, he expanded it into a compendium for university use as *Institutio philosophiae secundum principia Renati Descartes … ad usum juventutis academicae* (1672, reprinted 1675, 1678). In his *Historia naturae* (1679) Le Grand attempted to apply Cartesian principles to natural phenomena, defended Descartes’s mechanistic account of animals, and adduced a variety of experiments to illustrate his points. It was probably for pedagogical purposes that in 1682 he published an annotated edition of (p. 503) Théophile

Bonet's Latin translation of Jacques Rohault's Cartesian *Traité de Physique*.[8] It may have been the success of this text which prompted Samuel Clarke to use Rohault's text as a vehicle for introducing Newtonian ideas by means of his own new Latin translation of Rohault in 1697 (see Section 7, "Clarke"). Le Grand's Cartesian writings were subsequently combined in an English translation overseen by Richard Blome with the title, *An Entire Body of Philosophy According to the Principles of the Famous Renate Descartes* (1694).[9]

Le Grand also acted as a self-appointed apologist for Descartes, taking it upon himself to defend Descartes against his English detractors. His *Apologia pro Renato Descartes, contra Samuelem Parkerum* (1679) vindicates Descartes from the charges of atheism made in Parker's *Disputationes de Deo* (1678). Subsequently, he defended Descartes against fellow-Catholic, the "Blackloist", John Sergeant, who attacked Descartes as a sceptic and originator of "ideism" (the doctrine that the only objects of knowledge are ideas, not things) in his *Method to Science* (1696) and *Solid Philosophy Asserted* (1697). Le Grand responded in his *Dissertatio de ratione cognoscendi* (1698).

4. Natural Philosophy

Descartes's "mechanical" natural philosophy aroused considerable interest among British natural philosophers, even if they did not adopt it wholesale. An early example of this is Sir Kenelm Digby, who assimilates aspects of Cartesianism to a broadly interpreted Aristotelianism in his *Two Treatises*, published in Paris in 1644—the first work of philosophy to be published in English.[10] For example, in the first part, *The Nature of Bodies*, Digby adopts a method of argument based on definitions and axioms, defines body as extension, and explains physical phenomena in terms of matter in motion.

Although the inductive methodology being developed at the Royal Society was the obverse of the Cartesian deductive approach to natural philosophy, the two approaches were not entirely antithetical. As the English translator of Descartes's *Discours* reminds readers, "the Great Descartes" encourages everyone "for the good of Mankinde" to "practice and communicate Experiments" (Descartes 1649: Preface). It is not unusual to find that acceptance of some aspects of Cartesianism was tempered by critique of other aspects. So, for example, although Isaac Barrow regarded Descartes as a "most ingenious and important philosopher" whose account of natural phenomena was superior to other accounts available, he had reservations about Descartes's metaphysics and the explanatory power of his mechanistic physics. His MA oration defended the claim "That the Cartesian Hypothesis Concerning Matter and Motion Scarcely Satisfies (p. 504) the Phenomena of Nature" (Feingold 1990). Robert Boyle is another who expressed admiration for Descartes, and believed that the mechanical philosophy offered the most comprehensive and plausible account of natural phenomena. Nevertheless, he insisted on its limited scope and explanatory power (as he did for his own experimental investigations). He disagreed with Descartes on final causes and was critical of Descartes's dogmatic confidence in the certainty of his conclusions. But he refrained from strong censure.

Walter Charleton is best remembered for disseminating Gassendi's philosophy in England. But he too registers the impact of Cartesianism. Charleton's *Darkness of Atheism Dispelled by the Light of Nature* (1650) draws on Descartes's *Meditations* to prove the existence of God. Descartes is a source for his account of the passions in his *Natural History of the Passions* (1674), which also draws on Gassendi, Epicurus, Hobbes, and Willis. Although he endorsed the mechanical philosophy, Charleton was also critical of Descartes on a number of things: in his *Natural History of the Passions*, for example, he criticized Descartes for failing to account for the interaction between soul and body, and he repudiated Descartes's view that the pineal gland is the principal seat of the soul, observing that this notion revealed Descartes's imperfect understanding of anatomy.

In many cases, initial admiration for Cartesian philosophy was sapped by growing reservations. Isaac Barrow was critical of Descartes's a priori method and his neglect of experimental enquiry, anticipating a frequent charge made against Descartes that a fundamental defect of his natural philosophy was that it was poorly founded in experience. Like Henry More, Barrow became increasingly concerned about the implications of Cartesianism for religious belief (Gabbey 1982; Feingold 1990). So too did Joseph Glanvill, self-appointed defender of the Royal Society, who revised his initial enthusiasm for "the Great Des-Cartes" (Glanvill 1661: 28), as he became increasingly convinced of the materialist implications of Cartesian mechanical philosophy (Jesseph 2005).[11] Initially Edward Stillingfleet thought that Descartes offered the best account of "the most noted phenomena of the world" (Stillingfleet 1662: 468), but he subsequently changed his view in favour of Newton.

A rare case of Cartesianism defended against the claims of experimental science is the aforementioned Gilbert Clerke, who argued in favour of the Cartesian plenum in his *De plenitudine mundi* (1660), criticizing the alternative theories of Bacon, Ward, and Hobbes. In his *Tractatus de restitutione corporum, in quo experimenta Torricelliania & Boyliana explicantur & rarefactio Cartesiana defenditur*, Clerke also intervened against both Boyle and Francis Lines, to defend the Cartesian theory of rarefaction in the debates about the existence of a vacuum sparked by the Torricellian experiment.[12]

(p. 505) 5. Conway and Cavendish

Two remarkably independent and original interventions in debates surrounding Descartes in Britain were by women, Anne Conway and Margaret Cavendish. Both read Descartes at an early point in the Cartesian reception. And both rejected Cartesian dualism, to propose alternative forms of substance monism. In Conway's case, the fragment of correspondence that survives from her epistolary tutorials with Henry More affords a rare glimpse of how Descartes was used in university philosophy teaching. These tutorials, based on Descartes, were lessons in critical thinking, in which she learned not to be a Cartesian dogmatist. Conway would later reject Cartesian dualism in favour of substance monism in her only work of philosophy, *The Principles of the Most Ancient and Modern Philosophy* (1690).[13] Nevertheless her Cartesian formation is reflected in the a priori

character of her metaphysics, her deduction of her system from her conception of God as a perfect being. She also employs Descartes's conception of body as inert extension and acknowledges that Descartes "taught many remarkable and ingenious things concerning the mechanical aspects of natural processes, and about how all motions proceed according to regular mechanical laws" (Conway 1996: 64). She nevertheless denies that motion is communicated mechanically, arguing (similarly to Margaret Cavendish) that as a mode of body, motion cannot "pass properly from one body to another". Rather, it is activated in one body by another by what she calls "real production or creation". Even so, she deduces her monism from causal principles accepted by Descartes, in particular the principle that any effect must be like its cause ("*effectus similis est causae*"), and that the cause is at least as perfect as its effect (cf. Meditation III). She argues, first, that since all things bear some resemblance to the first cause (i.e. God), it follows that body, being mere extension and therefore devoid of life and perception, is so contrary to God's nature that it could not exist. Secondly, change and other forms of causal interaction can only occur between things that are alike, so soul and body must be modes of a common substance (Hutton 2004).

Margaret Cavendish, too, repudiated dualism, and like Conway she offered a non-mechanical account of the workings of nature. In contrast to Conway, however, Cavendish posited a materialist monism that attributes a variety of powers to matter (motive, rational, perceptive). Although she herself adopted a deductive approach, in contrast to the experimenters, she was wholly critical of Descartes's mechanistic natural philosophy. The extent of her knowledge of Descartes's writings and how she acquired this knowledge is not altogether certain since she did not read Latin, disclaimed knowing French, and only ever admitted to partial knowledge of particular texts.[14] Textual evidence (p. 506) indicates that she was acquainted with the English translation, *The Passions of the Soule* (1650), the *Discours*, and *Principia philosophiae*.[15] She apparently owed a great deal of her philosophical knowledge to her brother-in-law Charles Cavendish, and her view of Cartesianism may have been influenced by Hobbes and Charleton, whom she knew through the Cavendish circle, as she did Huygens and Sir Kenelm Digby, and probably also Descartes himself (Wilkins 2014). Her *Philosophical Letters* (1664) presents her views by comparing them with her illustrious male contemporaries: Descartes, along with Hobbes, More, and Van Helmont. She also critiques Descartes's laws of motion in her *Observations upon Experimental Philosophy* (1666; see Cavendish 2001). Cavendish's objections to Cartesianism are selective, focusing on divergences that serve to highlight her own views. So, for example, she attacks Cartesian dualism, questioning how an immaterial substance could move a solid body, and ridiculing his locating the soul in the pineal gland. Her attribution of reason and sense perception to some parts of matter contradicts the Cartesian mechanical account of the operations of nature, and his mechanistic view of animals. Some of the topics that Margaret Cavendish discusses directly in her own philosophy are similar to those discussed in her husband's correspondence with Descartes. In the absence of his letters to Descartes, it is not possible to determine the precise motivation for his broaching these themes. But given social convention that restricted women's

contact with men outside their families, we cannot exclude the possibility that it was a proxy correspondence between his wife and Descartes.

6. Cudworth

One of the most underappreciated figures in the English philosophical reception of Descartes is Ralph Cudworth. His extensive critique of Hobbes, and his concern with atheism in his *True Intellectual System of the Universe* (1678) have obscured the fact that he was deeply engaged with Cartesianism, and that his book is as much concerned with mistaken forms of theism as it is with atheism. Cudworth is an interesting case of ambivalence towards Descartes. Although they couldn't be more different in style, Cudworth had high regard for Descartes as "an Acute Philosopher" (Cudworth 1678: 646). He regarded Descartes as a "Mechanick Theist", a natural philosopher who believed in God, and proposed a version of the mechanical philosophy, which he thought compatible with religious belief. At the same time he was a trenchant critic of Cartesian philosophy, which he held to be "highly obnoxious to Censure upon some Accompts" (Cudworth 1678: 175). Although he did not believe Descartes was an atheist or that he intended to promote atheism, Cudworth nevertheless thought that the flaws that he detected in Descartes's philosophy made him a "well-wisher" to atheism, or worse, (p. 507) "an *Hypocritical Theist*, or *Personated* and *Disguised Atheist*" (Cudworth 1678: 646). For Cudworth, Descartes was a supreme case of a philosopher undone by failures of philosophical reasoning.

It is fair to say that Cudworth was steeped in Cartesianism (Passmore 1951; Sailor 1962). He was thoroughly familiar with Descartes's writings. His library was well stocked with Descartes's works. He particularly admired Cartesianism as a system of philosophy, commending the fact that it combined physics with metaphysics, and posited both corporeal and incorporeal substance—"acknowledging besides *Extended Substance* and *Corporeal Atoms*, another *Cogitative Incorporeal Substance*, and joyning *Metaphysicks* or *Theology*, together with *Physiology*, to make up one entire *System of Philosophy*" (Cudworth 1678: 175). Cudworth's own philosophy registers the impact of Descartes in multifarious ways. He accepted the Cartesian distinction between mind and body,[16] and clear and distinct perception as the criterion of epistemological certainty. He embraced both the idea of consciousness—not without qualification, to be sure—and the idea of God as a fully perfect, self-existing being. He regarded Descartes as the great modern exponent of atomist natural philosophy, as the reviver of an ancient theory dating back to Pythagoras (Cudworth 1996: 151). The attraction of the mechanical conception of body for Cudworth was first its intelligibility. By accounting for corporeal phenomena in terms of the simple properties that may be apprehended by the mind, namely size, shape, position, and motion, it "renders the Corporeal World Intelligible to us … and we cannot clearly and distinctly conceive anything in Bodies else" (Cudworth 1678: 49). Secondly, Cudworth held that this philosophy is necessarily theistic, since its central claim that body is inert extension ("which hath nothing belonging to it but Magnitude, Figure, Site, Rest, and Motion, without any Self-moving Power" (Cudworth 1678: 49)) requires some kind of immaterial principle of activity to account for movement. Consequently, "whosoever admits it, and rightly

understands it, must needs acknowledge Incorporeal Substance; which is the Absolute Overthrow of Atheism" (Cudworth 1678: Sig. *2v). Arguably Cudworth's entire philosophical project, *the true intellectual system* that gives his *magnum opus* its title, was conceived as a response to Cartesian philosophy.

There isn't space here to examine the full extent and intricacies of Cudworth's discussion of Cartesianism. His critique of Cartesianism is embedded in an overarching refutation of atheist philosophies, well stocked with parallel cases taken from antiquity. Cudworth has a cluster of interconnecting concerns: Descartes's scepticism, conception of divine will, rejection of final causes, account of eternal truth, consciousness, and proofs of the existence of God. He was familiar with established objections to Cartesianism—for example he cites Gassendi's objections.

A remarkable feature of Cudworth's response to Descartes is its ambivalent combination of critique and correction. This is particularly striking in his discussion of *Meditations*, which occurs within the elaborate taxonomy of atheistic arguments that occupy the fifth chapter of his *True Intellectual System*. Cudworth objects first that (p. 508) Descartes's proof of God "from his idea" rests on the fallacious circularity of proving the truth of our faculties from the truth of God's existence, and the truth of God's existence from the truth of our faculties (Cudworth 1678: 717).[17] The result is a "New *Sceptical Hypothesis*" where there is no certainty even that "two and two are four". The root problem is Descartes's voluntarist conception of God, which overplays divine will and power to the detriment of all truth and goodness. Cudworth interprets Descartes as a voluntarist, whose conception of the divine will is akin to Calvinism. Cudworth deals with the sceptical challenge by arguing that "the divine will hath no imperium on the divine understanding" and recasting Descartes's criterion of truth in Platonist terms:

> since no *Power* how great soever, can make any thing indifferently to be True; and since the Essence of Truth in *Universal Abstract things*, is nothing but *Clear Perceptibility*; it follows, that *Omnipotence* cannot make any thing that is False to be clearly Perceived to Be.
>
> (Cudworth 1678: 718)[18]

Following this, Cudworth objects that to infer the actual self-existence of a perfect being from the definition of such a being is to commit the further fallacy of inferring an absolute conclusion from a mere hypothesis: "when from the *Necessity* of *Existence* affirmed only *Hypothetically* or upon a *Supposition* of a Perfect Being, the Conclusion is made concerning it *Absolutely*" (Cudworth 1678: 722). Nevertheless, he professes himself to be reluctant to condemn anyone who has at least attempted to demonstrate the existence of God. So he devotes space to considering alternative ways of proving the existence of God from the idea of God. The purpose of the exercise seems to be not so much to show the failure of Descartes's arguments, as to show that even if one were convinced by Descartes's proof, the argument is too intricate to be of practical value: Descartes "*Meta-*

physicall Arguments … though never so good, yet by reason of their *Subtlety*, cannot doe so much *Execution*" (Cudworth 1678: sig (g3)[v]).

The weaknesses of Descartes's metaphysical proofs, as Cudworth saw them, would be less serious but for his repudiation of final causes. By rejecting final causality, Descartes has undermined the well-tested argument from design. This leaves proof of God's existence dependent on weak or overly complicated metaphysical arguments. Repudiation of final causes is also the "chief" error of Descartes's natural philosophy, which attempts to account for the workings of the physical world through the necessary and unguided motion of matter. Thus, despite his claim to have saved all the phenomena of the natural world, Descartes is completely unable to explain the orderliness and harmony of the cosmos, which Cudworth holds to be "the Grandest of all Phaenomena". Cudworth attributes this error to a further error in metaphysics: Descartes's "acknowledging only *Two Heads* of Being, *Extended* and *Cogitative*, and making the *Essence of Cogitation* to consist in *Express Consciousness*" (Cudworth 1678: 175). In other words he has failed to (p. 509) recognize that true atomism requires us to posit something more substantial than matter: "whosever really entertains it, and rightly understands it, must of necessity acknowledge Incorporeal Substance" (Cudworth 1678: 47). This incorporeal substance has to be something more than conscious cogitation. Accordingly Cudworth posits an "energie" which he dubs "Plastic Nature", which is capable of directing the workings of nature in an end-directed way. Descartes's failure to account for finality in nature means he has "quite disarmed the World, of that grand Argument for a Deity, taken from the Regular Frame and Harmony of the Universe" (Cudworth 1678: 175). In this way he has outdone "even the very Atheists themselves". This "Gross Miscarriage" is further compounded by the fact that Descartes posits, or appears to posit, the eternity of matter ("he seems to make Matter *Necessarily Existent*, and *Essentially Infinite* and *Eternal*" (Cudworth 1678: 175). Even so, Cudworth is forgiving: "we cannot entertain that Uncharitable Opinion of him, that he really designed *Atheism*", because "the Fundamental Principles of his Philosophy" are such that "no Atheistick Structure can possibly be built upon them" (Cudworth 1678: 175). Unfortunately, however, it has been perverted by the likes of Hobbes and Spinoza, the modern materialists, the "*Leucippus* and *Democritus*" of the seventeenth century.

The delayed publication of *The True Intellectual System* in 1678 separates Cudworth's critique of Descartes from the Cartesian debates of the 1660s and early 1670s, to which he may well have intended to contribute. But it appeared in time to find an audience with the new philosophers of the next generation: Locke, Newton, and Samuel Clarke among them.[19] The new context for the book is apparent in the abridged version of the text by Thomas Wise, which appeared in 1706 as *A Confutation of the reason and Philosophy of Atheism*. This is not merely a shortened version of Cudworth's *System*; Wise updates Cudworth's critique of Descartes for the Newtonian age by adding a long refutation of Cartesian cosmology, which cites Henry More, John Keill, Isaac Newton, and John Locke. In this way Cudworth's book contributes to the anti-Cartesianism of the Newtonian environment in England.

7. Clarke

A key figure in that Newtonian environment was, of course, Samuel Clarke, who most certainly did take notice of Cudworth's critique of Cartesianism (MacIntosh 1997). As spokesman for Newtonianism, and adviser to Cotes when he was preparing the second edition of *Principia mathematica*, Clarke is best probably best known for his defence of (p. 510) Newton against Leibniz (1715–16) and for acting as Newtonian mentor to Voltaire while the latter was in London (1726–9). Clarke was himself a product of the Cartesian turn at seventeenth-century Cambridge—like Newton himself in fact. His translation of Rohault's textbook of Cartesian physics, which he published with Newtonian footnotes,[20] exemplifies the transition from Descartes to Newtonian in process. Clarke's own Cartesian formation shows through most clearly in his metaphysics and religious apologetics, especially in his "argument a priori", that is his defence of religion by using arguments "as near as to Mathematical as the Nature of such Discourse would allow" (Clarke 1706: sig A3^{r-v}; Ferguson 1974). The finest display of this is his first set of Boyle Lectures, published as *A Demonstration of the Being and Attributes of God* (1706).[21] Although targeted principally at Hobbes and Spinoza, these also critique Descartes, in particular his conception of body and repudiation of final causes, which Clarke argues are conducive to atheism. In the first part of *A Demonstration* Clarke's arguments to prove self-existence recapitulate Cudworth's in reduced form. Acknowledging Cudworth, in a margin note, he argues that the ontological argument fails to demonstrate the actual existence of a perfect being: all Descartes has shown is that the *idea* of perfection may include the *idea* of self-existence. Citing Henry More's correspondence with Descartes, he also argues that on Descartes's own principles, matter is necessarily existent and is therefore eternal (Clarke 1998: 51)—an objection that is restated in his footnotes to Rohault: "if *Extension* were the Essence of Matter, and so *Matter* the same as *Space it self*, it would follow that Matter is infinite and necessarily eternal" (Rohault 1723: 24). The necessary existence of matter and exclusion of final causes become the leitmotif of Clarke's criticisms of Descartes in his later controversies with free-thinkers like Anthony Collins: "that matter is necessarily infinite and necessarily eternal, and ascribing all things to mere mechanical laws of motion, exclusive of final causes and all will and intelligence and divine providence from the government of the world" (Clarke 1998: 111).

By the end of the seventeenth century, Cartesian physics and cosmology had become "whipping boys" for all British Newtonians. Focusing overwhelmingly on the shortcomings of Cartesian mechanics and a priori method, Newtonians such as Keill and Cotes routinely ridicule the Cartesian system as unfounded hypotheses and Cartesian cosmology as "a romance"—themes which would be taken up by Voltaire in his *Lettres sur les Anglais* and developed further in his *Elemens de la philosophie de Neuton*, with the help of Emilie du Châtelet, who was herself familiar with Clarke's writings (Hutton 2012). In this way, anti-Cartesian arguments from the British reception become a weapon in the "Newton Wars" in France, which ultimately ended with the final demise of Cartesian physics (Shank 2008).

References

Atherton, Margaret (2005), “Descartes Among the British: The Case of the Theory of Vision”, in Tad. M. Schmaltz (ed.), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*. London and New York: Routledge, 218–34.

Broad, Jacqueline (2003), *Women Philosophers of the Seventeenth Century*. Cambridge: Cambridge University Press.

Carmichael, Gershom (2002), *Natural Rights*, ed. James Moore, trans. Michael Silverthorne. Indianapolis: Liberty Fund.

Cavendish, Margaret, Duchess of Newcastle (1664), *Philosophical Letters*. London: n.p.

Cavendish, Margaret, Duchess of Newcastle (2001), *Observations on Experimental Philosophy*, ed. E. O’Neill. Cambridge: Cambridge University Press.

Charleton, Walter (1650), *Darkness of Atheism Dispelled by the Light of Nature*. London: J. F. for William Lee.

Charleton, Walter (1674), *The Natural History of the Passions*. London: Thomas Newcomb for James Magnes.

Clarke, Samuel (1706), *A Demonstration of the Being and Attributes of God*. London: William Botham for James Knapton.

Clarke, Samuel (1998), *A Demonstration of the Being and Attributes of God*, ed. Ezio Vailati. Cambridge: Cambridge University Press.

Conway, Anne (1996), *The Principles of the Most Ancient and Modern Philosophy*, trans. Taylor Corse and Allison Coudert. Cambridge: Cambridge University Press.

Cudworth, Ralph (1678), *The True Intellectual System of the Universe*. London: Richard Royston.

Cudworth, Ralph (1996), *A Treatise Concerning Eternal and Immutable Morality*, ed. Sarah Hutton. Cambridge: Cambridge University Press.

Descartes, René (1649), *A Discourse of a Method, for the well-guiding of Reason, and the Discovery of Truth in the Sciences*. London: Thomas Newcombe.

Descartes, René (1650), *The Passions of the Soule in three books*. London: Andrew Crooke for J. Martin and J. Ricley.

Descartes, René (1664), *Renati Des Cartes Specimina philosophiæ. Seu Dissertatio de methodo*. London: James Flesher for Jona Hart.

Descartes, René (1668), *Renati Descartes Epistolæ*. London: John Dunmore and Octaviani Pulleyn.

Descartes, René (1680), *Six Metaphysical Meditations*. London: B. G. for Benjamin Tooke.

Digby, Kenelm (1644), *Two Treatises. In the one of which, the Nature of Bodies; in the other, the Nature of mans soule; is looked into: in way of discovery, of the immortality of reasonable soules*. Paris: Gilles Blaizot.

Dobbs, Betty Jo (1971), "Studies in the Natural Philosophy of Sir Kenelm Digby", *Ambix* 18: 1–25.

Easton, Patricia (2016), "Antoine Le Grand", in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2016 edition) [online]. Available at: **https://plato.stanford.edu/archives/spr2016/entries/legrand/** [accessed 3 October 2018].

Feingold, Mordechai, ed. (1990), *Before Newton: The Life and Times of Isaac Barrow*. Cambridge: Cambridge University Press.

Feingold, Mordechai (1997), "The Humanities" and "The Mathematical Sciences and New Philosophies", in Nicholas Tyacke (ed.), *Seventeenth-Century Oxford: History of the University of Oxford*, vol. 4. Oxford: Oxford University Press, 211–448.

(p. 512) Ferguson, James (1974), *The Philosophy of Dr Samuel Clarke and its Critics*. New York: Vantage Press.

Gabbey, Alan (1982), "*Philosophia cartesiana triumphata*: Henry More and Descartes (1646–71)", in Thomas M. Lennon, John M. Nicholas, and John W. Davis (eds.), *Problems in Cartesianism*. Kingston and Montreal: McGill-Queens University Press, 171–250.

Gascoigne, John (1989), *Cambridge in the Age of the Enlightenment*. Cambridge: Cambridge University Press.

Gellera, Giovanni (2015), "The Reception of Descartes in the Seventeenth-Century Scottish Universities: Metaphysics and Natural Philosophy (1650–1680)", *The Journal of Scottish Philosophy* 13: 179–201.

Glanvill, Joseph (1661), *The Vanity of Dogmatizing*. London: E. Cotes for Henry Eversden.

Heereboord, Adriaan (1684), *Philosophia naturalis*. London: William Hall apud John Crossley.

Henry, John (2010), "Sir Kenelm Digby. Recusant Philosophy", in G. A. J. Rogers, Tom Sorell, and Jill Kraye (eds.), *Insiders and Outsiders in Seventeenth-Century Philosophy*. London: Routledge, 43–75.

Henry, John (2013), "The Reception of Cartesianism", in Peter Anstey (ed.), *The Oxford Handbook of British Philosophy in the Seventeenth Century*. Oxford: Oxford University Press, 136–43.

Hobbes, Thomas (1994), *Correspondence*, ed. Noel Malcolm, 2 vols. Oxford: Clarendon Press.

Hutton, Sarah (2004), *Anne Conway: A Woman Philosopher*. Cambridge: Cambridge University Press.

Hutton, Sarah (2005), “Women Philosophers and the Early Reception of Descartes: Anne Conway and Princess Elisabeth”, in Tad. M. Schmaltz (ed.), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*. London and New York: Routledge, 3–24.

Hutton, Sarah (2012), “Between Newton and Leibniz: Emilie du Châtelet and Samuel Clarke”, in Ruth Hagengruber (ed.), *Emilie Du Châtelet, between Leibniz and Newton*. Dordrecht: Springer, 77–95.

Hutton, Sarah (2015), *British Philosophy in the Seventeenth Century*. Oxford: Oxford University Press.

Jesseph, Douglas (2005), “Mechanism, Skepticism, and Witchcraft: More and Glanvill on the Failures of Cartesianism”, in Tad. M. Schmaltz (ed.), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*. London and New York: Routledge, 199–217.

Lamprecht, S. P. (1935), “The Role of Descartes in Seventeenth-Century England”, *Studies in the History of Ideas* 3: 181–240.

Le Grand, Antoine (1694), *An Entire Body of Philosophy, according to the Principles of the famous Renate Des Cartes*. London: Samuel Roycroft for Richard Blome.

MacIntosh, J. J. (1997), “The Argument from the Need for Similar or ‘Higher’ Qualities: Cudworth, Locke, and Clarke on God’s Existence”, *Enlightenment and Dissent* 16: 29–59.

Mautner, Thomas (2000), “From Virtue to Morality: Antoine Le Grand (1629–1699) and the New Moral Philosophy”, *Jahrbuch für Recht und Ethik* 8: 209–32.

More, Henry (1662), *A Collection of Several Philosophical Writings*. London: James Flesher for William Morden.

Nicolson, Marjorie H. (1929), “The Early Stages of Cartesianism in England”, *Studies in Philology* 26: 356–74.

Pacchi, Arrigo (1973), *Cartesio in Inghilterra: Da More a Boyle*. Bari: Laterza.

Parker, Samuel (1665), *Tentamina physico-theologica de Deo*. London: John Sherley.

Passmore, J. A. (1951), *Ralph Cudworth: An Interpretation*. Cambridge: Cambridge University Press.

(p. 513) Pell, John (2005), *John Pell (1611–1685) and his Correspondence with Sir Charles Cavendish*, ed. Noel Malcolm and Jacqueline Stedall. Oxford: Oxford University Press.

Popkin, Richard H. (1992), “Cudworth”, in Richard H. Popkin, *The Third Force in Seventeenth-Century Thought*. Leiden: Brill, 333–50.

Rogers, G. A. J. (1985), “Descartes and the English”, in J. D. North and J. J. Roche (eds.), *The Light of Nature: Essays in the History and Philosophy of Science presented to A.C. Crombie*. Dordrecht: Springer, 281–302.

Rohault, Jacques (1682), *Jacobi Rohaulti Tractatus physicus Gallice emissus et recens Latinitate donatus, per Th. Bonetum D.M. Cum animadversionibus Antonii Le Grand*. London: G. Wells and A. Swalle.

Rohault, Jacques (1723), *Rohault’s system of natural philosophy, illustrated with Dr. Samuel Clarke’s notes taken mostly out of Sir Isaac Newton’s philosophy*. London: James Knapton.

Sailor, Danton B. (1962), “Cudworth and Descartes”, *Journal of the History of Ideas* 23: 133–40.

Schuler, Johannes (1682), *Exercitationes ad principiorum philosophiæ Renati Des Cartes*. Cambridge: Johannes Hayes.

Schuler, Johannes (1685), *Examinis philosophiæ Renati Des-cartes specimen, sive Brevis & perspicua principiorum philosophiæ Cartesianæ refutatio*. Cambridge: Johannes Hayes.

Semler, L. E. (2012), “Margaret Cavendish’s Early Engagement with Descartes and Hobbes: Philosophical Revisitation and Poetic Selection”, *Intellectual History Review* 22: 327–53.

Shank, J. B. (2008), *The Newton Wars and the Beginning of the French Enlightenment*. Chicago and London: University of Chicago Press.

Shepherd, Christine M. (1975), “Philosophy and Science in the Arts Curriculum of the Scottish Universities in the Seventeenth Century”. PhD dissertation, University of Edinburgh.

Stillingfleet, Edward (1662) *Origines Sacrae*. Or *a Rational Account of the Grounds of Christian Faith, as to the Truth and Divine Authority of the Scriptures*. London: Robert White for Henry Mortlock.

Watson, Richard A. (1987), *The Breakdown of Cartesian Metaphysics*. Atlantic Highlands, NJ: Humanities Press.

Wilkins, Emma (2014), “Margaret Cavendish and the Royal Society”, *Notes and Records: The Royal Society* 68: 245–60.

Notes:

([1]) On the reception of Descartes, see Atherton 2005; Henry 2013; Feingold 1990; Lamprecht 1935; Nicolson 1929; Pacchi 1973; Rogers 1985; Webster 1969.

([2]) *A Discourse of a Method, for the Well-guiding of Reason* was based on the 1637 French original, rather than the 1644 Latin version. Descartes 1650, 1664.

([3]) Descartes 1668, 1680; More 1662.

([4]) Both versions were reprinted several times; see Hutton 2015.

([5]) Carmichael's "Compend of Logick" (1711), which was revised and published as *Breviuscula introductio ad logicam* (1720, 1722), is based on Arnauld.

([6]) See Schuler 1682, reprinted 1686; also Schuler 1685.

([7]) On Le Grand, see Easton 2016; Mautner 2000; Watson 1987.

([8]) Rohault 1682, reprinted 1692, 1696, 1699. Rohault's *Traité de Physique* was first published in 1671.

([9]) Le Grand was not, apparently, entirely happy with this translation, because so much had been added, omitted, and changed by the editor that he did not know whether he ought to acknowledge it as his own.

([10]) On Digby see Dobbs 1971; Henry 2010.

([11]) Evident in the revised version of *The Vanity of Dogmatizing* (1661), which was republished under other titles.

([12]) Clerke edited Oughtred's *Clavis mathematicae* (1682), and was one of first readers of Newton's *Principia mathematica*, about which he engaged in correspondence with Newton. William Whiston was one of his pupils.

([13]) First published in 1690 as *Principia philosophiae antiquissimae ac recentissimae*.

([14]) However, the reliability of such claims is open to doubt—it is, after all, improbable that a lady in waiting to a French queen (Henrietta Maria) did not learn French—and she may have depended on intermediaries. Thus her knowledge of Descartes's philosophy must have been from English translations and possibly French editions.

([15]) She probably read Cartesian writings at an early stage of her philosophical trajectory —i.e. between 1649/50 and 1653 (Semler 2012). This would suggest that, as with Conway, her route to philosophizing lay via Cartesianism, even if she repudiated it later.

([16]) Unlike Henry More, Cudworth agreed with Descartes that extension is not a property of mind or soul (or, indeed, of any immaterial substance).

([17]) As Popkin points out, Cudworth's phrasing here echoes Pascal, *Pensée* 434 (Popkin 1992: 347).

([18]) For a further full discussion see Cudworth 1996: Book I, ch. 3.

([19]) Cudworth's book was more widely read than is usually assumed today. His critique of Cartesianism had an extended afterlife in the eighteenth century, thanks to Thomas Wise's abridged version of *The True Intellectual System* which was reprinted three times between 1706 and 1732. By excising most of the lengthy classical quotations, and reducing repetitions, Wise made Cudworth's text more accessible.

([20]) These increased in length and number with every reprinting.

([21]) *A Demonstration* prints Clarke's 1704 Boyle Lectures. Clarke does not rely wholly on a priori demonstration, but combines it with a posteriori argument from the frame of nature (much of it drawn from Newton). Cudworth would have approved! He was invited to give the Boyle Lectures again in 1705.

Sarah Hutton

University of York

“Italy Did Not Want to Be Cartesian”: And For Good Reason

Giulia Belgioioso

The Oxford Handbook of Descartes and Cartesianism
Edited by Steven Nadler, Tad M. Schmaltz, and Delphine Antoine-Mahut

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Abstract and Keywords

At the end of the eighteenth century, Appiano Buonafede (i.e. Agatopisto Cromaziano) had no doubt: Italy did not want to be Cartesian—just as it had not wanted to be Baconian—and this was “much better for Italy”. While Buonafede exaggerated, Cartesianism did not have an easy life in the peninsula. The first to experience this was Mersenne, who also on two occasions tried, with little luck, to promote its circulation among a Galilean circle in Florence and Rome by bringing Descartes’s books with him to Italy. And Galileo was not very welcoming, complaining about the indecipherable writings of the Minim. This chapter reconstructs the varied life of Cartesianism in Italy, starting from the discussions generated by the writings of the French philosopher.

Keywords: Italy, Galileo, Neapolitan Cartesians, Jesuits, Cartesian mathematicians

(p. 514) 1. Introduction

IN a book devoted to the “character and history of all philosophies” (*Della indole e della istoria di ogni filosofia*), written at the end of the eighteenth century, Appiano Buonafede (i.e. Agatopisto Cromaziano: 1716–93) wrote, with scarcely concealed pleasure, that Italy did not want to be Cartesian—much as it had not wanted to be Baconian—and that this was “much better for Italy” (*il migliore è stato per lei*) (Buonafede 1788: 82). The Cartesian epic had been an increasingly redundant tale and had hindered the progress of science just as Aristotelianism had done.[1] In Italy, it had found, writes Buonafede, at least three antagonists. Not just Galileo (“a disciple of only nature, geometry and himself”), who “discovered the sky and nature on the Arno river” (while Bacon “planted the encyclopedical tree on the banks of the Thames” and “René Descartes created philosophical poems on the shore of the Baltic”);[2] but also the tendency towards “stern scholastic” and (p. 515) “experimental philosophy”. This tendency was well established and nurtured in Italy, in the Lincei and Cimento academies which were “entirely devoted to observations, experiments and new discoveries”,[3] long before Bacon’s dedication to this. There were

only a few Cartesians in Italy, who were “more cautious than elsewhere” and also more “clever” than Descartes himself, “who thought truths, and then wrote fables” (*che pensò le verità, e poi compose le favole*).[4]

Appiano Buonafede records the names of four Cartesians: Giovanni Alfonso Borelli (1608–79), Michelangelo Fardella (1650–1718), Tommaso Cornelio (1614–84), and the “famous” Costantino Grimaldi (1667–1750). Of Grimaldi he wrote that “he valiantly fought against Aristotelianism, and defended his *Descartes* with perhaps excessive latitude and clamor”,[5] although only when just sparse “relics” of Cartesianism were left. Therefore, according to Appiano Buonafede, at the midpoint of the eighteenth century Cartesianism in Italy, which always stayed afloat with difficulty, was reduced to a wreck.

Appiano Buonafede boasts a staunch (and inflated) national pride, but he hits the mark as to the causes of the late diffusion of Cartesianism in Italy in comparison with other European countries. For example, he is right in stating that the diffusion of Cartesian philosophy in Italy had been hindered by scholastic philosophy (still lively and prevailing in schools) and by the dominance of Galilean science in academies and scientific circles. He considers Tommaso Cornelio the model for Italian Cartesianism, in his opposition to scholastic philosophy, because of his fidelities to “nature” and “truth” and his “love” for Galileo and Descartes. “[H]e [Cornelio] loved *Galileo* and his school, and also *Descartes*, whose reputation he introduced and spread in Naples, without altering nature and truth with his own flair” (*Amò [Cornelio] Galileo e la sua scuola e insieme Cartesio, la cui fama introdusse e dilatò in Napoli senza depravare con l’estro la natura e la verità*).

In this chapter we will give an account of the failure of the many attempts by Mersenne (1588–1648) in the early seventeenth century to help spread knowledge of Cartesian physics in Galilean circles, as well as the late seventeenth-century renown of the *Geometry* in Galilean circles (after its time had passed, so to speak). We will look at the birth of the Descartes-icon as a symbol of freedom of thought in the middle of the seventeenth century and its purported equivalence to Spinoza in the 1730s, when only sparse relics of Cartesian philosophy still survived.

(p. 516) 2. Mersenne, Descartes, and the Galilean Circle

Mersenne makes three attempts over the years to bring knowledge of Cartesian physics to Galileo and the members of the so-called Galilean circle. In 1637, he sends several examples of the *Discourse on the Method* to Florence and Rome. In 1643, he writes a letter “from mathematicians in Paris to mathematicians in Florence”. Finally, in 1644, he brings to Rome, packed in a suitcase, the *Principles of Philosophy* and other works: *Specimina* and *Explication des engins par l’aide desquels on peut avec une petite force lever un fardeau fort pesant*, together with works by Fermat (1607–65), Roberval (1602–75), and his own *Cogitata*.[6]

All three attempts have been studied and narrated several times. For example, it is known that the copy of the *Discourse* sent to Florence in 1637 did not reach its destination, while the copies sent to Rome arrived; and that the arrival of the *Principles* in Rome in 1644 was delayed because the suitcase got lost.[7]

1637: A letter from Mersenne to Galileo, bearing the date November 27, 1637 (the *Discourse* had been published in June, just five months before), is sent with a copy of the *Discourse* that Descartes himself gave to Galileo. Mersenne expresses his satisfaction with “introducing” Galileo to the theory and practice of “dioptrics” and puts himself forward as a mediator for a dialogue with Descartes:[8] “At last, Most Illustrious Sir [Galileo], you can get to know the theory and the practice of dioptrics […] Please accept the book that Mr. Descartes sends to you from the Low Countries, and give us confirmation you received it so that I can write to him about the successful delivery.”[9] According to sources, Galileo only received an illegible letter[10] by way of a relative living in Lyon (p. 517) called Roberto, and not the *Discourse* itself (it is uncertain whether the book ever arrived[11]). Evidently annoyed, Galileo complained in a letter to Elia Diodati (1576–1661) in August 1638: “The letter from Father Mersenne […] was passed around to many friends and all the members of the academy, but nobody was able to read enough of it to catch even the gist of the discourse.”[12] The copies of the *Discourse* sent to Rome were delivered smoothly and without complication. Two letters, dated March 31 and December 6, 1638, show Descartes thanking Mersenne, and also provide evidence that the books arrived in Rome and are in the hands of the cardinals Guido di Bagno (1578–1641) and Francesco Barberini (1597–1679).[13]

1643: On July 1, 1643, Mersenne sends a letter on behalf of Parisian academics to the friends of Galileo in Italy (in Florence, Rome, Bologna, and Genova): “Mersenne, in the name of the Paris mathematicians, to the friends of Galileo, in Italy” (*Mersenne, au nom des Mathématiciens de Paris, aux amis de Galilée, en Italie*). The letter quotes the critical observations of Galileo’s *Discourses* (*Discorsi e dimostrazioni matematiche intorno a due nuove scienze*), sent by Descartes to Mersenne on October 11, 1638.[14] The letter, successfully delivered, had been entrusted by Mersenne to Antonio Santini (1577–1662),[15] a mathematician we will consider later.

1644: In 1644, when he reaches Rome, Mersenne does not have the suitcase that contained his own book as well as those by Fermat, Roberval, and Descartes. The suitcase was famously later recovered,[16] and Mersenne made the decision, as recounted in the *Praefationes* to his *Novarum observationum physico-mathematicarum*, to donate the (p. 518) *Principles* to the Capuchin friar Valeriano Magni (1586–1661) instead of Michelangelo Ricci (1619–82).[17] We know the acquaintances Mersenne met with in Rome thanks to a letter he sent from Paris on October 5, 1645, to Ricci.[18] Among them he mentions Santini and Tommaso Cornelio; Mersenne asks Ricci to check if Cornelio has found the books he promised he would be able to get in Naples, and for which he had already been given the money (*duquel sachez s’il a trouvé les livres à Naples qu’il m’avait fait esperer afin que je lui fasse tenir l’argent*).[19] Cornelio plays a fundamental role, and many sources mark his arrival in Naples with Descartes’s books in 1649/50 as the beginning of Carte-

sianism in Italy; Santini is the scholar (*savant*) to whom Mersenne had committed in 1643 the letter addressed to the Galilean circle.

Mersenne’s strategy to prompt a discussion between “Parisian mathematicians” and the “friends of Galileo” proves unsuccessful, at least initially. The letters exchanged after his letters sent in 1637, 1643, and 1645 do not even mention them, showing that his effort had been worthless. In the wake of their publication, Cartesian works did not spark much interest in Rome or Italy, or more broadly. This observation can be validated *e contrariis* by the Church censorship of the *Meditations, Specimens, Principles* and *Passions of the Soul* (*Meditationes, Specimina, Principia*, and *Passionibus animae*); this latter being a text written in 1663 and promoted by the University of Leuven, immediately divulged by Plempius (in 1664) and by the *Journal des savants* in 1666.[20]

The interest in Descartes’s works would spread some years after their publication and would concern, initially, neither his mathematical works (a “Cartesian mathematical movement” will develop around the 1690s) nor the metaphysical ones (whose luck will not improve until the next century), but his atomist side, which associated him with Gassendi (1592–1655). Around the middle of the century, Descartes and Gassendi, as we will see later, are the *auctoritates* recalled to legitimize experimental physics and “chemical”, non-Galenic, medicine.

(p. 519) Metaphysics, which so excited Europe, was “barely murmured” in Italy, wrote Giovanni Gentile (1875–1944).[21] Manuscript translations of the *Meditations*, recently found in Italian libraries, are evidence of their circulation in university courses or more generally in teaching, but not before the late seventeenth to the early eighteenth century.

For example, between 1689 and 1690 Vitale Giordani (1633–1711) translates large sections from the *Passions of the Soul*, the *Meditations*, the *Principles*, and *Treatise on Man* for his courses at the University La Sapienza (Biblioteca Casanatense), and in the early eighteenth century Ercole Corazzi (1669–1726; later professor of algebra in Bologna) translates six of the meditations to be used in his lessons given in his role as tutor to the son of Giovanni Girolamo Acquaviva d’Aragona.[22] Over the same period, Paolo Francone, Marquis of Salcito, translated the *Abrégé* of Baillet’s biography of Descartes (*Ristretto della vita di Renato Descartes*, 1713), and in 1722 Giuseppa Eleonora Barbapiccola (1702–40) translated the *Principles* (with a comparison to the Latin original). Barbapiccola was a member of the Accademia degli Arcadi, founded in Naples in 1690 by her uncle, the Dominican friar Tommaso Maria Alfani (1680–1742).

Therefore the same Descartes, who physicians and physicists associate with Gassendi because of his atomism, will be associated by metaphysicians with Augustine or Spinoza. We will see later the debate in which Paolo Mattia Doria (1667–1746) will associate Descartes with Spinoza, whereas his opponent, Francesco Maria Spinelli (1686–1752), will associate him with Augustine.

3. The “Mathematical Cartesian Movement”

Surprisingly, Mersenne doesn’t even mention the *Geometry* in his 1637 letter; he only comments on the *Dioptrics* to Galileo. It is certain that Mersenne was influenced by the fact that in 1637, around the time the *Geometry* appeared, the *Geometria degli indivisibili* (1635) of Cavalieri (1598–1647) had recently been published in Italy, Galileo’s *Discourses* (1638) were ready to be printed in Leiden (Descartes gave his opinion on it in the aforementioned letter to Mersenne of October 11, 1638[23]), and the *Opera geometrica* (1644) by Torricelli (1608–57) would follow a few years later. It has been astutely observed that the great success of Italian mathematics in Europe could well have overshadowed Descartes’s *Geometry* and explain its lack of initial success in Italy and its relatively slow circulation.[24] However, other factors should also be taken into consideration: 1) Galileo, Torricelli, and Cavalieri’s limited knowledge of algebra (despite the fact that the discipline had flourished in Italy between the late sixteenth and the early seventeenth century); 2) the preference the Galilean circle gave to the Euclidean synthetic method; and 3) their poor (p. 520) knowledge of the French language. All these factors explain, for example, Ricci’s doubts concerning Santini’s mathematical competencies, expressed in a letter to Torricelli that was written after reading the *Supplementum Francisci Vietae*, which was published in 1644 under the pseudonym Costantius Silanius Nicenus.[25]

Indeed, it was only after 1649, when the Latin translation of the *Geometry* by van Schooten (1615–60) started to circulate, that the work started to see some popularity.[26] This happened, for the most part, outside Galilean circles, particularly in Genova and Naples, as well as in Rome and Padua, cities in which Viète’s works had circulated widely. In Padua, where Marino Ghetaldi (1568–1626) had donated a copy of Viète’s *De recognitione aequationum* to Paolo Sarpi (1552–1626), two copies were made of it: one went to Rome (at the Collegio Romano) and one to Naples, where Santini brought Viète’s *Ars analytica*.[27] Also in Padua, we recall Carlo Rinaldini (1615–98), who wrote *De resolutione et compositione mathematica* (1668), *Geometra promotus* (1670), and the third part of *Ars analytica* (1684); in Venice, Michelangelo Fardella (1650–1718), who later took up the chair of philosophy in Padua, vacated by Rinaldini in 1696. He subsequently tried to bring the Neapolitan mathematicians Monforte and De Cristoforo to the chair of *Astronomia e Meteore* vacated by him in Padua. We will return to this later.

Michelangelo Fardella—*le grand cartésien*—was largely responsible for the widespread circulation of Cartesianism throughout Italy. He had been “Gassendian” and had converted to Cartesianism after having met Cassini (1625–1712), Malebranche (1638–1715), Arnauld (1612–94), Régis (1632–1707), and Lamy (1640–1715) in Paris between 1678 and 1680. Despite meeting Leibniz in Venice (1690), Fardella didn’t convert to integral calculus, although from 1690 to 1714 the two scholars kept up a frequent correspondence.[28] In 1691 two of Fardella’s Cartesian works were published: the *Universae usualis mathematicae theoria* (containing an exposition of analytical methods and of second-degree equations) and the *System of Universal Philosophy* (*Universae philosophiae systema*), featur-

ing a logical system in which some of Malebranche’s themes are added to the basis of Arnauld and Nicole’s “Cartesian” work, the *Logic or Art of Thinking* (1662).

The first part of *System* deals with errors that have sprung from the abuse of human freedom, and the other sections look at the main operations of the soul (perceiving, judging, reasoning, and ordering), and at ideas, syllogism, and method. The volume ends with an *Appendix secunda* (498–510) which challenges the Cartesian theory of the existence of material things. According to Fardella, not only can we not have metaphysic certainty of the existence of material things, we also cannot object that God is deceiving us, because God does not compel us to consent.

In the name of his Cartesianism, between 1694 and 1698, Fardella defends (in the journal *Galleria di Minerva* and in printed texts) Cartesian philosophy from accusations by Genoese philosopher Matteo Giorgi (1650–1728), author of the essay *Saggio della* *(p. 521)* *nuova dottrina di Renato Descartes* (1694), in which he claims to have revealed Descartes’s errors.[29] Fardella’s line of defense documents the Augustinian roots of Cartesian philosophy[30] and reveals the “malicious artifice” constructed by Giorgi. This malicious artifice, which highlights the novelty of Cartesian theories, tries to present them as dubious. Matteo Giorgi will go on to publish a dispute (*Disputa intorno ai principi di Renato delle Carte, ripigliata e finita contro l’autore* [Costantino Grimaldi] *della risposta alla terza lettera di Benedetto Aletino*, 1713) in which he joins forces with the Jesuit Benedetto Aletino (1622–1706)—that is, Giovanni Battista De Benedictis—who, as we will see later, will attack Descartes and Neapolitan Cartesians (the *investiganti*).[31] Also in this debate, De Benedictis (as anti-Cartesian) and the Cartesians demonstrate the opposition between the old and the new. De Benedictis appeals to this opposition to delegitimize Cartesian philosophy in order to document its breaks with tradition. He even calls the Cartesians *juvenes* and his view that of the *veteres*, legitimizing and consolidating his view by documenting its continuity with tradition. In Naples, *juvenes*/Cartesians and *veteres*/*scholastici* build parties, factions, academies, and circles that over a century, from the second half of the seventeenth to the first half of the eighteenth century, prepare for a confrontation in epic battles.

As far as mathematics is concerned, in the 1690s a full-fledged “mathematical Cartesian movement” was born in Naples.[32] Among the many people involved, three mathematicians who are also staunch Cartesians stand out: Antonio Monforte (1644–1717), Giacinto De Cristoforo (1667–1725), and Agostino Ariani (1672–1748).[33] The first publishes *De problematum determinatione* (1699). The second, who will be involved as someone accused in the “process against atheists” in Naples between 1688 and 1697,[34] published *De constructione aequationum libellus* (1700).[35] Even if Fardella, as we said before, would have liked Monforte and De Cristoforo to teach in Padua, there is a great distance between the interesting works by Cartesian mathematicians and the discoveries by Leibniz, Bernoulli (1700–82), etc.[36] Finally, the third of these Cartesian mathematicians wrote a noteworthy oration, *Intorno all’utilità della Geometria*,[37] only printed some years ago, and pronounced in 1790 at the inaugural meeting of the Academy in Medinaceli. Some mathe-

maticians formed a group of *juvenes* gathering in the mid-seventeenth century around a physician, Tommaso Cornelio, and his academy.

In Naples, sure enough, everything starts with the arrival of Tommaso Cornelio and his copies of Descartes’s writings. We have already seen that he was in touch with the (p. 522) writings in Rome, where he met Mersenne, to whom he also promised to send some books, as we read in the letter of October 5, 1645. In another 1646 letter, addressed from Rome to Marco Severino (1580–1656), we learn that Tommaso Cornelio had asked Mersenne for an opinion on the “composition of water”: “having long waited for some considerations by Torricelli and Mersenne”, he writes, “on the question proposed by His Lordship, and noticing that they are busy in other contemplations, and do not dare to disclose their opinions if not examined with thoughtful judgment, I deemed expedient to write some of my own reflections”.[38]

4. The “Elusive Cartesianism” of the *Investiganti*

Descartes’s works finally arrive in Naples in 1649/50, brought by Tommaso Cornelio.[39] This event quickly acquires symbolic meaning among his contemporaries as a radical turn of events, a cultural renovation of the name of Descartes. Cornelio represents the new way of “philosophizing”. There are several sources on this topic: Francesco D’Andrea (1625–98) states he was “the first to embrace” the new philosophical fashion and claims that Naples owes to Cornelio (“the great Tommaso”) the knowledge of Descartes, “of which, up to that time, even the name was unknown to us” (*di cui sino a quel tempo n’era stato a noi incognito il nome*) and “everything that is deemed today more reliable in philosophy and in medicine” (*tutto ciò che oggi si sa di più verisimile nella filosofia e nella medicina*).[40] Costantino Grimaldi explains that Descartes and Gassendi had been “introduced” in Naples by both Cornelio and Leonardo di Capua (1617–95).[41] Giambattista Vico (1668–1744) and Paolo Mattia Doria (1667–1746), less enthusiastic, state that Neapolitan young men, before becoming Cartesians (= metaphysicians) had been Gassendists and atomists: “at the beginning of my studies”, writes Doria, “everybody followed the philosophy of Pierre Gassendi […] At that time only matter and senses were praised […] But […] shortly after the Epicurean sect was banished, and the doctrine of Descartes was embraced: therefore, nothing was predicated other than confused ideas, borrowed ideas, clear and distinct ideas, real distinction, and all these similar terms by Descartes.”[42] Vico (p. 523) recalls that the Neapolitan *savants* had been Aristotelian before devoting themselves to “experiments” and “machines” (“young people have started to celebrate vehemently” Epicurean philosophies over Gassendi, and then Locke and Boyle), finally landing in the “abstrusities” of Cartesian metaphysics, generally without being aware that what they “admired as new, great and sublime in Descartes” was indeed “old and well-known among Platonists”. This was the case for his friend Paolo Mattia Doria. Some years later and in the next generation, Pietro Giannone (1676–1748) confirmed that the renewal was due to Cornelio and Leonardo di Capua, both anti-Galenist physicians and Cartesians.[43]

Cornelio, who was connected with Galilean circles and was a staunch modernist, owed his renown to a lecture on eclipses given in 1652 at the Accademia degli Oziosi.[44] From 1653 he became chair of mathematics and theoretical medicine at the local university. In 1663 he founded, with Leonardo di Capua (a physician himself), the Accademia degli Investiganti, which grouped together young “Cartesians”, who could be described more accurately as atomists or primarily anti-scholastics. Members of the new Academy included physicians such as the helmontian Sebastiano Bartoli (1629–76) and Lucantonio Porzio (1639–1723), the mathematician Carlo Buragna (1634–79), but also the jurist Francesco D’Andrea (1625–98), Giuseppe Valletta (1636–1714), and Juan Caramuel Lobkowitz (1606–82).

The presence of physicians and scientists explains why the Academy’s research primarily developed in the field of medicine (e.g. the fever pandemic around the Agnano lake, the cause of which was proved not to be the presence of flax cultivations, as claimed by the Galenists), as well as in the fields of physics (the apparition of a comet in 1664 or the phenomenon of fumaroles) and chemistry (the new society was also called the “Chemical Academy”). The Academy established a connection with the Royal Society, which sent correspondents to Naples, and to the Accademia del Cimento.[45]

An anonymous 1665 text, *Ode in lode della famosa Accademia degli Investiganti*, contains the program and goals of the group: to research the causes behind natural phenomena “according to the way taught by the great Galileo” (*secondo la maniera insegnata dal gran Galilei*), through experiments, in absolute freedom and independence from any sect.[46] The *investiganti* are atomists (they are inspired by ancient Greek corpuscular theories as found in Lucretius[47] and, in modern times, in Galileo, Descartes, and Gassendi), observers of phenomena, and experimenters. Two non-scientists, Valletta and D’Andrea, have left some manuscripts in which they argue: 1) that atomism is Christian and that modern atomists are the heirs of a very ancient tradition dating back (p. 524) to Mocho or Moses, Plato, and the Fathers of the Church, including Augustine, and 2) that Aristotelianism is heretical.[48]

The Academy faced the hostility of the Galenic physicians gathered in the Aristotelian Accademia dei Discordanti, along with the chief physician (*protomedico*) Carlo Pignataro, who managed to induce the Viceroy to close the Academy in 1670. There was also the hostility of scholastics and, in particular, the Jesuits. One of them, the aforementioned De Benedictis, attacked the members of the Academy in 1694, after its closure. Some *investiganti*, under the accusation of heresy, faced trial in the so-called “Trial of Atheists” (*Processo agli Ateisti*, 1688–97). The mathematician Giacinto de Cristoforo was involved in the trial and incarcerated for six years, before recanting and being released with all the other indicted members.[49]

The third dispute took place among the coalition of modernists and developed in the 1730s: one of the two contenders, Paolo Mattia Doria (a Genoese nobleman living in Naples) was a “repentant” Cartesian, while the other, Francesco Maria Spinelli, was a prince.

5. The Jesuit Assault

In 1694, while the “Trial of Atheists” is still ongoing, the Jesuit Giovanni Battista De Benedictis (Benedetto Aletino) publishes five “apologetic letters in defence of scholastic theology and peripatetic philosophy” (*Lettere apologetiche in difesa della teologia scolastica e della filosofia peripatetica*)[50] in which, under false names, the *investiganti* D’Andrea, Leonardo Di Capua (1617–95), Tommaso Cornelio, and Giuseppe Valletta are mentioned. De Benedictis is the dean (*prefetto*) of schools and the *Collegio di Gesù* and translator of works by the Jesuit Gabriel Daniel (1649–1728),[51] and therefore a good example of Counter-Reformation Catholic orthodoxy.

The first of the five letters contains the defense of scholastic theology and peripatetic philosophy, presented as the sole bulwark against the diffusion of heresy prompted by Cartesian philosophy. The other four criticize Cornelio’s and Di Capua’s “chemical” and anti-Galenic medicine and the Augustinian interpretations of God and the soul (p. 525) (second letter); “Descartes is believed more than Aristotle” (third letter); the *investiganti*’s atomism (from their mentors, Gassendi and Boyle) and atheism (fourth letter); and the freedom of thought, fostering the atheism of atomists and libertines (fifth letter).

During one of the meetings held in the rare books library of casa Valletta after the closure of the Academy, the *investiganti* are determined to answer “Father Giovan Battista de Benedictis [… and] not to admit, by their silence, to being guilty of the calumnies thrown by him, and to show that they were followers of a doctrine that could stand before so weak an adversary”.[52] The answer is provided by D’Andrea and Grimaldi.

Francesco D’Andrea represents Leonardo Di Capua in an “Answer in defense of Lionardo di Capoa against the apologetic letters by the Jesuit Father De Benedictis” (*Risposta a favore del Sig. Lionardo di Capoa contro le lettere apologetiche del p. De Benedictis gesuita*, 1697). His main thesis is that Di Capua “has nothing to do” with Cartesian philosophy. Sure enough, Di Capua, in his “Opinion in eight arguments, in which the uncertainty of Medicine is clearly shown” (*Parere* […] *in otto ragionamenti nei quali* […] *chiaramente l’incertezza della* [medicina] *si manifesta*, 1681) aimed not to defend Cartesian philosophy, but to prove “how vain and void of solid knowledge Aristotle’s philosophy was” (*quanto vana, quanto priva d’ogni salda dottrina fosse la filosofia d’Aristotile*, p. 94). The “modern philosophers”, among them Copernicus (1473–1543), Kepler (1571–1630), Bruno (1548–1600), Galileo, Bacon, Descartes, Gassendi, Boyle (1627–91), and Hobbes, were the “tutelary deities” who taught “the defense of philosophical truth” (*a sostenere la filosofica verità*) and how to be free (pp. 57, 59, 61). Di Capua, essentially, had upheld experimentalism, stating that the physician should content himself with the probable, and that medicine should restrict itself to the limits of experience and of “weak” reason. His *Parere* was therefore not so much Cartesian as anti-Aristotelian and anti-scholastic.

Grimaldi[53] composes three “answers”. In the first, he proposes to go back to the origins, to the neo-Platonic and Patristic age before the advent of Aristotelian theology, keeping the separation between philosophy and theology (*il teologare deve esser distinto dal*

filosofare). In the second answer, he “manhandles” Aristotle, claiming that on the basis of Aristotle’s principles, the pillars of Christianity (divine providence, creation, immortality of the soul) are challenged, while on the contrary Cartesian doctrines are not in tension with the Scripture. Finally, in the third answer, the “real” Descartes, “staunch follower” of Augustine, is opposed to the “Democritean and rotten Epicurean” Descartes depicted by De Benedictis. The controversy went on until De Benedictis’s death in 1705.

(p. 526) 6. The “Relics” of Cartesianism

In the 1730s, a ten-year-long controversy sparks between Paolo Mattia Doria (1676–1748), a “repentant” Cartesian converted to Platonism, and the Cartesian Francesco Maria Spinelli (1686–1752). Doria was a Genoese nobleman who went to live in Naples, fascinated by the lively cultural life of the city, and who was initially a supporter of Cartesian philosophy but ended up rejecting it.[54] Spinelli was a Cartesian educated at the school established by Gregorio Caloprese (1650–1715), “the great Cartesian [*renatista*] philosopher”, in his home village, Scalea in the Calabria. Among his pupils was the famous poet Metastasio. Spinelli boasts his Cartesian education: he recounts, for example, that the daily lessons at Caloprese’s school were devoted to reading and commenting on the Scriptures, to mathematics, philosophy, and rhetoric. There were no scholastics among the philosophers studied, only ones making use of analytical method, and above all Descartes.[55]

In the debate between Doria and Spinelli, it is essential to understand whether or not Cartesian metaphysics had been the breeding ground for Spinozistic metaphysics. In other words, the challenge was to prove whether Spinoza’s ideas could, or could not, have directly descended from Descartes. The thesis of the filiation of Spinozism from Cartesianism had been upheld by Doria in a work published in 1724, the *Discorsi critici filosofici*,[56] in which he made a sort of public abjuration of the Cartesian faith. Doria attempts to explain how he fell into the Spinozist trap, and how others could make the same mistake if they start with Cartesian metaphysics and follow the criterion of clarity and distinction established in the Third Meditation. Spinelli, conversely, accuses Doria of being not a Cartesian, but a concealed Spinozist and therefore a “concealed atheist”. He then proves Doria’s thesis to be wrong, recalling the Platonic roots of Cartesianism. This is the most efficient way, he wrote, to fight against Spinozism “and make the most of Descartes himself” (*e ricavar più frutto dallo stesso Renato*).[57] The debate continued and produced other publications without reaching any conciliation between the contenders, who from the beginning only agree on the rejection of Spinozism. Spinelli later gave his account of this debate in his 1753 autobiography.[58]

Naples, it has been observed, is the place where all versions of Cartesianism are put on trial and confront each other.[59] In other parts of Italy, the most significant fact is not the (generally later) date of the initial circulation of Descartes’s works, but rather the lack of a movement that gathered circles of intellectuals—physicians, scientists, jurists, philosophers—who found common ground in the fight for modern philosophy. In Tuscany, in

1660, the Danish anatomist Niels Stensen (italianized as Niccolò Stenone: 1638–86) was active in Florence at the court of the Grand Duke of Tuscany. As an illustrious anatomist, he linked up with Melchisédech Thévenot (ca. 1620–92) in Paris in 1665, (p. 527) where he pronounced the renowned “Discours on the anatomy of the brain” (*Discours sur l’anatomie du cerveau*, later published in 1669). In this he criticizes Descartes’s physiological doctrines and, in particular, the idea that the pineal gland is the seat from which the soul exerts its functions. In Milan, in 1704, the Jesuit Tommaso Ceva (1648–1737) published a poem in Latin hexameter, entitled *Philosophia novo-antiqua*, which challenges the philosophies of Descartes and Gassendi for their Epicurean and Lucretian heritage. As far as Cartesian physics is concerned, the identification of the essence of matter with extension is especially criticized.

A response to Ceva came from the Camaldolese mathematician Guido Grandi (1671–1742), who in 1724 published, under the pseudonym of Lucius Alphaeus, the *Diacrisis in secundam editionem Philosophiae novo-antiquae* (with no indication of place). In Sicily, Cartesian physics was presented in verse form, first by the poet Tommaso Campailla (1668–1740) (*Filosofia per principi e cavalieri*, posthumously published in 1841), and then in 1744, by the philosopher Benedetto Stay (1714–1801), who published a Latin didactic poem about Cartesian philosophy (*Philosophiae versibus traditae libri VI*).

‘Elusive’ would be a fair term to describe Cartesianism’s impact on Italy. For if not, how else can one explain the *investiganti*’s haste to link Descartes and Gassendi, giving both the role of “tutelary deities” of their own atomism and experimental philosophy? Perhaps neither Gassendi nor Descartes could have imagined this, when they opposed solid objections (Gassendi) and meditation and answers (Descartes).[60] As previously mentioned, Caramuel was a member of the Academy, and responsible for coining the expression: “the truth hidden in Nature’s book” (*latentem veritatem in libro naturae*),[61] which sums up the program of the Academy. It seemed Caramuel at least, knew of Gassendi’s objections, as he refers to them in a letter sent to Descartes, who might however never have received it.[62] Italian Cartesianism continues to elude precise definition.

References

Agostini, Igor, and Emanuela Orlando, eds. (2013), “Juan Carmuel y Lobkowitz Animadversiones in Meditationes cartesianas”, *Rivista cistercense* 30: 105–237.

Armogathe, Jean-Robert, and Vincent Carraud (2001), “La première condamnation des Œuvres de Descartes, d’après des documents inédits aux archives du Saint-Office”, *Nouvelles de la République des Lettres* 2: 103–37.

Ascione, Imma, ed. (1990), *Francesco D’Andrea: Avvertimenti ai nipoti*. Naples: Jovene.

Belgioioso, Giulia (1999), *La variata immagine di Descartes*. Lecce: Conteditore.

Belgioioso, Giulia, and Jean-Robert Armogathe (2015), *René Descartes. Isaac Beeckman. Marin Mersenne: Lettere 1619–1648*. Milano: Bompiani.

Borrelli, Antonio (2012), “Un’ode per l’Accademia degli Investiganti nel nome del ‘gran Galileo’ ”, *Giornale critico della filosofia italiana* 91: 19–27.

Buccolini, Claudio (1996), “La prima edizione dei Principia e degli Specimina a Roma nel 1645”, *Nouvelles de la République des Lettres* 2: 151–4.

(p. 528) Buccolini, Claudio (1998), “La diffusion romaine des Principia e des Specimina à Roma en 1645”, *Bulletin cartésien* 26: 33–4.

Buonafede, Appiano (1788), *Della restaurazione di ogni filosofia ne’ secoli XVI, XVII, XVIII*, vol. IV (t. II), in *Opere complete* (1788–1789), 7 vols. (16 tt.). Naples: Porcelli.

Cacciapuoti, Fabiana (1997), “Il processo agli ateisti: dalle discussioni teologiche al giusnaturalismo”, in *Dalla scienza mirabile alla scienza nuova: Napoli e Cartesio. Catalogo della mostra bibliografica e iconografica*. Naples: Istituto Italiano per gli Studi Filosofici, 149–71.

Caramuel y Lobkowitz, Juan (1670), *Mathesis biceps*. Campanie: in officina episcopali.

Costabel, Pierre (1969), “Un registre de manuscrits témoin de l’activité de Mersenne en Italie en 1645”, *Revue d’Histoire des sciences et de leurs applications* 22: 151–62.

Crasta, Francesca (1996), “Sulla presenza di Descartes nella ‘Galleria di Minerva’ ”, *Giornale critico della filosofia italiana* 75/77: 312–29.

D’Andrea, Francesco (1995), “Apologia in difesa degli atomisti”, in Antonio Borrelli (ed.), *D’Andrea atomista. L’‘Apologia’ e altri inediti nella polemica filosofica della Napoli di fine Seicento*. Naples: Liguori, 59–109.

Daniel, Gabriel (1690), *Voyage du monde de Descartes*. Paris: chez la veuve de Simon Bernard.

Daniel, Gabriel (1694), *Response aux lettres provinciales de L. de Montalte, ou Entretien de Cleandre et Eudoxe*. Colonia: Marteau.

De Benedictis, Giovannni Battista [Benedetto Aletino] (1694), *Lettere apologetiche in difesa della teologia scolastica e della ilosofia peripatetica*. Naples: Raillard.

De Benedictis, Giovanni Battista (1695), *Ragionamenti di Cleandro e di Eudosso sovra le Lettere al Provinciale recati nell’italiana favella dall’original francese*. Pozzuoli: Raillard.

De Benedictis, Giovanni Battista (1703), *Viaggio per lo mondo di Cartesio con seco la sua continuazione. Opera del P. Gabriello Daniello della Compagnia di Gesù. Recata dall’original franzese nel nostro volgare italiano*. Genova: Franchelli.

De Liguori, Girolamo (1996), “La reazione a Cartesio nella Napoli del Seicento. Giovambattista De Benedictis”, *Giornale critico della filosofia italiana* 75/77: 330–55.

De Nelli, Giovanni Batista Clemente (1793), *Vita e Commercio letterario di Galileo Galilei*, 2 vols. Losanna: Gioacchino Pagani.

Donzelli, Maria (1970), *Natura e humanitas nel giovane Vico*. Naples: Istituto Italiano per gli Studi Storici.

Doria, Paolo Mattia (1724), *Discorsi critici filosofici*. Venice [Naples]: no publisher.

Doria, Paolo Mattia (1728), *Filosofia con la quale si chiarisce quella di Platone*, 2 vols. Amsterdam [Naples]: no publisher.

Doria, Paolo Mattia (1732), *Difesa della metafisica degli antichi filosofi contro il Signor Giovanni Locke, ed alcuni altri moderni autori*. Venice [Naples]: no publisher.

Doria, Paolo Mattia (1981), “L’arte di conoscere se stesso”, in P. De Fabrizio (ed.), *Manoscritti napoletani di Paolo Mattia Doria*, vol. IV. Galatina: Congedo, 411–31.

Fardella, Michelangelo (1698), *Animae humanae natura ab Augustino detecta*. Venice: Albrizzi.

Femiano, Salvatore, ed. (1978), *Michelangelo Fardella: Lettere ad Antonio Magliabechi (1691–1709)*. Cassino: Editrice Garigliano.

Femiano, Salvatore, ed. (1986), *Fardella: Pensieri scientifici* e *Lettera antiscolastica*. Naples: Bibliopolis.

Fisch, Max H. (1953), “The Academy of the Investigators”, in Edgar A. Underwood (ed.), *Science, Medicine and History*, vol. 1. London: Oxford University Press, 521–63.

Galilei, Galileo (2015), *Le opere di Galileo Galilei*, 20 vols. Firenze: Giunti.

Galluzzi, Paolo, and Maurizio Torrini, eds. (1975), *Le Opere dei Discepoli di Galileo Galilei: Carteggio 1642–1648*. Firenze: Giunti-Barbera.

(p. 529) Garber, Daniel (2004), “Leibniz and Fardella”, in Paul Lodge (ed.), *Leibniz and His Correspondents*. Cambridge: Cambridge University Press, 125–40.

Gatto, Romano (1986), “Giacinto De Cristoforo, un matematico cartesiano napoletano tra la fine del Seicento e gli inizi del Settecento”, *Bollettino di storia delle scienze matematiche* 6: 31–88.

Gatto, Romano (1991), “Contributo di Antonio Monforte allo sviluppo dell’Ars analytica a Napoli”, in Massimo Galluzzi (ed.), *Giornate di storia matematica*. Commenda di Rende: EditEl.

Gatto, Romano (1994), *Tra scienza ed immaginazione: Le matematiche presso il Collegio gesuitico napoletano 1552–1670*. Firenze: Olschki.

Gatto, Romano (1996), “Il cartesianismo matematico a Napoli”, *Giornale critico della filosofia italiana* 75/77: 360–79.

Gatto, Romano, and Giogio Gerla (1987), “Le equazioni di 4º grado in Antonio Monforte e Giacinto De Cristoforo”, *Periodico di Matematiche* 63: 43–54.

Gentile, Giovanni (1910), “Il pensiero nel secolo del Vico”, *La Critica* 8: 464–9.

Giancotti, Emilia (1988), “Les polémiques sur Descartes en Italie”, in Henri Méchoulan (ed.), *Problématique et réception du “Discours de la méthode” et des “Essais”*. Paris: Vrin, 289–93.

Giannone, Pietro (1723), *Della istoria civile del Regno di Napoli*, vol. VI. Naples: Niccolò Naso.

Giorgi, Matteo (1713), *Disputa intorno ai principi di Renato delle Carte, ripigliata e finita contro l’autore della risposta alla terza lettera di Benedetto Aletino*. Genova: Antonio Casamarra.

Grimaldi, Costantino (1699), *Risposta alla lettera apologetica in difesa della teologia scolastica di Benedetto Aletino. Opera nella quale si dimostra esser quanto necessaria ed utile la teologia dogmatica e metodica, tanto inutile, e vana la volgar teologia scolastica*. Colonia [Geneva]: Sebastiano Hecht.

Grimaldi, Costantino (1702), *Risposta alla seconda lettera apologeticadi Benedetto Aletino. Opera utilissima a’ professori della filosofia, in cui fassi vedere quanto manchevole sia la peripatetica dottrina*. Colonia: Sebastiano Hecht.

Grimaldi, Costantino (1703), *Risposta alla terza lettera apologetica contra il Cartesio creduto da più d’Aristotele di Benedetto Aletino. Opera in cui dimostrasi quanto salda e pia sia la filosofia di Renato delle Carte e perché questa si debba stimare più d’Aristotele*. Colonia [Naples]: G. Rosselli.

Grimaldi, Costantino (1964), *Memorie de un anicurialista del Settecento*. Florence: Olschki.

Guerrini, Luigi (1996), “Note su traduzioni manoscritte delle opere cartesiane”, *Giornale critico della filosofia italiana* 75/77: 500–7.

Lojacono, Ettore (1996), “L’arrivo del ‘Discours’ e dei ‘Principia’ in Italia: prime letture dei testi cartesiani a Napoli”, *Giornale critico della filosofia italiana* 75/77: 395–454.

Lojacono, Ettore, ed. (2017), *Tommaso Cornelio: Discorso dell’eclissi detto nell’Accademia degli Oziosi*. Lecce: Conteditore.

Marchetti, Alessandro (1717), *Lucrezio. De rerum natura*. London: Giovanni Pickard.

Mersenne, Marin (1644), *Cogitata physico-mathematica, in quibus tam naturae quam artis effectus admirandi certissimis demonstrationibus explicantur*. Paris: Antonii Bertier.

Mersenne, Marin (1647), *Novarum observationum physico-mathematicarum*, vol. III. Paris: Antonii Bertier.

Mersenne, Marin (1932–88), *Marin Mersenne: Correspondance*, 17 vols. Paris: PUF-CNRS.

Micheli, Gianni (1988), “Le *Discours* chez les scientifiques italiens du XVIIe siècle”, in Henri Méchoulan (ed.), *Problématique et réception du “Discours de la méthode” et des “Essais”*. Paris: Vrin, 153–69.

Nicenus, Costantius Silanius [Antonio Santini] (1644), *Supplementum Francisci Vietae, ac geometriae totius instauration*. Paris: Petrum Des-Hayes.

(p. 530) Osbat, Luciano (1974), *L’Inquisizione a Napoli: Il processo agli ateisti 1688–1697*. Roma: Edizioni di Storia e Letteratura.

Pepe, Luigi (1988), “La réception de la ‘Géométrie’ en Italias”, in Henri Méchoulan (ed.), *Problématique et réception du “Discours de la method” et des “Essais”*. Paris: Vrin, 171–8.

Pepe, Luigi (1990), “La *Géométrie* in Italia nel sec. XVII: un confronto con l’Europa”, in Giulia Belgioioso et al. (eds.), *Descartes il metodo e i saggi*, vol. II. Roma: Istituto della Enciclopedia Italiana, 475–85.

Schooten, Frans van (1649), *Geometria a Renato Des Cartes anno 1637 gallice edita; postea autem una cum notis Florimindi D. Beaune*. … Amsterdam: Elsevier.

Spallanzani, Mariafranca (1992), “Per esempio nella Filosofia si spiegava il puro testo delle Meditazioni di Cartesio”, *Nouvelles de la République des Lettres* 2: 36–69.

Spinelli, Francesco Maria (1733), *Riflessioni* […] *su le principali materie della prima filosofia, fatte ad occasione di esaminare la prima parte di un libro intitolato Discorsi critici-filosofici intorno alla filosofia degli antichi e de’ moderni di Paolo-Mattia Doria*. Naples: Angelo Vocola.

Spinelli, Francesco Maria (1753), “Vita e studi di Francesco Maria Spinelli principe della Scalea scritta da lui medesimo”, in Angiolo Calogerà, *Raccolta di opuscoli scientifici e filologici*, vol. 49. Venice: Simone Occhi, 463–521.

Suppa, Silvio (1971), *L’Accademia di Medinaceli: Fra tradizione investigante e nuova scienza civile*. Naples: Istituto Italiano per gli Studi Storici.

Torrini, Maurizio, ed. (1970), “Lettere inedite di Tommaso Cornelio”, *Atti e memorie dell’Accademia toscana di Scienze e Lettere La Colombaria* 35: 139–55.

Torrini, Maurizio (1973), “Antonio Monforte. Uno scienziato napoletano tra l’Accademia degli Investiganti e quella palatina di Medinaceli”, in Paola Zambelli (ed.), *Ricerche sulla cultura dell’Itlia moderna*. Bari: Laterza, 99–146.

Torrini, Maurizio (1977), *Tommaso Cornelio e la ricostruzione della scienza*. Naples: Guida.

Torrini, Maurizio (1981), “Una lettera inedita di Mersenne a Michelangelo Ricci”, *Giornale critico della filosofia italiana* 60/62: 178–85.

Torrini, Maurizio (1985), “Le passioni di P. M. Doria: il problema delle passioni dell’animo nella ‘Vita civilke’ ”, in *Paolo Mattia Doria fra rinnovamento e tradizione*. Galatina: Congedo, 433–54.

Valletta, Giuseppe (1999), “Notizie, ed autorità cavate da una lettera di N.N. [per] li Diputati della città di Napoli al Papa, intorno al procedimento del Santo Uficio nella detta città, nella quale si difende la filosofia moderna, e si biasima l’aristotelica”, in Maria Occhinegro and Giulia Belgioioso (eds.), *Giacinto Gimma, Sylva rerum notabilium*, vol. 3. Lecce: Milella, 29–71.

Vergari, Giovanna (1998), “Les premières éditions de René Descartes dans les bibliothèques romaines”, *Bulletin cartésien* 26.

Zito, Paola (1997), *Circa mundi constitutionem: L’orizzonte sperimentale degli Investiganti*, in *Dalla scienza mirabile alla scienza nuova: Napoli e Cartesio. Catalogo della mostra bibliografica e iconografica*. Naples: Istituto Italiano per gli Studi Filosofici.

Notes:

([1]) It had been “so difficult to get it out of schools as it had been with Aristotelian prejudices” (*mestieri sudar tanto a sbandirlo dalle scuole, quanto si era sudato dianzi per isbandire i pregiudizii Peripatetici*) (Buonafede 1788: 61). Buonafede added: “The *censor* can see by himself that the satyrical *vain lightnings* and the imagined *fulminated freedom* did not hinder the propagation of Cartesian philosophy in Italy; they purified it instead from the deviated principles and the corollaries, which could at least outwardly offend the sanctity of Religion” (*Veda adunque il censore che i satirici fulmini fatui e la favolosa libertà fulminata non impedirono la propagazione della filosofia Cartesiana in Italia, e che anzi la purgarono dai principii de’ traviati e dai corollarii, che almen di risalto poteano offendere la santità della religione*) (Buonafede 1788: 84–5).

([2]) The original text says: Galileo *scopriva il cielo e la natura sull’Arno*; *piantava l’albero enciclopedico sulla sponda del Tamigi*; *Renato Cartesio meditava poemi filosofici sulla Senna e sulle rive del Baltico*. Descartes “had drawn”, in “geometric” and “algebraic” style, poems animated by a “‘tyrannical imagination’ of the universe, able to trigger the love for ‘greatness’ and ‘truth’ ” (Buonafede 1788: 50). Moreover, Descartes “visited with some profit the great part of Europe, but with his great loss did not visit Kepler and Galileo” (*visitò con mediocre utilità gran parte d’Europa e con molto suo danno non visitò Keplero e Galileo*) (Buonafede 1788: 51).

([3]) *interamente consacrate alle osservazioni e agli esperimenti e alle nuove scoperte*. The two academies couldn’t claim to be born “from the difficult *Atlantis*, or the *Novum Organum*, or from the *Sylva silvarum*, or other sketched work by Bacon” (*o dalla difficile* Atlantid*e o dall’*organo, *o dalla* selva delle selve, *o da altra abbozzata opera baconiana*) (Buonafede 1788: 24).

([4]) In Italy Cartesian philosophy “was always accompanied by the stern scholastic and the experimental philosophy, and the latter, finally correcting Descartes and Galileo himself, prevailed” (*qurono sempre ai fianchi [della filosofia cartesiana] la gelosa scolastica e la osservatrice filosofia, e questa finalmente, correggendo Cartesio* e *Galileo stesso, trionfò*) (Buonafede 1788: 83).

([5]) *Valorosamente militò contro il Peripato e difese il suo* Cartesio *con più estensione talvolta e con più strepito che non era mestieri* (Buonafede 1788: 84).

([6]) About the question whether the *Explication des engins par l’aide desquels on peut avec une petite force lever un fardeau fort pesant* was in Mersenne’s suitcase, see Costabel 1969: 155–62.

([7]) The letters from November 27, 1637 to June 22, 1638 allow one to follow the misadventures that occurred to the *Discourse*: Galilei 2015: XVII.241, 226, 299, 305, 322, 332, 345; and Mersenne 1932–88: VI.343, 339; VII.4448, 118, 204, 287. A detailed reconstruction can be found in Micheli 1988: 158–60. About the misfortune of the *Principles* in Rome, see Lojacono 1996: 395–454; Buccolini 1996, 1998; Vergari 1998.

([8]) About the mediating role of Mersenne between Descartes and the *savants* in the *République des Lettres*, see Belgioioso and Armogathe 2015: 15–95.

([9]) *Tandem, Vir Illustrissime, perfectam habeas de dioptricis theoriam et praxim […]. Accipe igitur librum Domini de Cartesii, quem ad te Batavia mittit*: Galilei 2015: XVII.226; VI.339. Galileo was well known by Mersenne who, in 1634, had published with Guénon, under the title *Les mechaniques de Galilée*, the French translation of the *Meccaniche* (Galilei 2015: II.149–91), and in 1639, with the same publisher, will release *Les nouvelles pensées de Galilée*. Descartes reads Galileo on the suggestion of Beeckman and Mersenne: see the letters to Mersenne on August 14, 1634 (AT I.303–6/CSMK 44–5; Belgioioso and Armogathe 2015: 444–9, notes 1–11) and on October 11, 1638 (AT II.380–99/CSMK 124–8; Belgioioso and Armogathe 2015: 784–803, nn. 1–85). Micheli (1988) proposes that *Les mechaniques de Galilée* could have prompted Descartes, even if indirectly, to write the *Explication des engins par l’aide desquels on peut avec une petite force lever un fardeau fort pesant* sent to Huygens on October 5,1637 (AT I.435–47/CSMK 66–73).

([10]) *Della lettera del P. Mersenno è accaduto che […] avendola data in mano di amici e finalmente di tutta l’accademia, non è stato possibile leggerne tante parole, che almeno in confuso si sia potuto ritrarre senso di tale scrittura*. Indeed, Roberto (son of a Knight of Malta, cousin of Galileo Galilei: De Nelli 1793: 565, n. 2) informs Galileo after almost a

month, on December 23, that he has delivered to the French consul in Livorno a copy of the *Discourse* (Galilei 2015: XVII.241; Mersenne 1932–88: VI.343).

([11]) See Micheli 1988: 158–9.

([12]) Galilei 2015: XVII.370. Galileo comments on Mersenne’s calligraphy in a letter written to Cavalieri on February 24: “I received almost a year ago a writing from a certain Father Mersenno […] written with such characters that the whole Florentine academy couldn’t understand enough to draw some meaning from it […] I answered to the friend who sent me it, to tell that Father to write me in a more understandable way, because here we don’t have at hand either the Sphynx or other shamans able to interpret mysteria” (*Ebbi circa un anno fa una scrittura di un P. Mersenno […] scrittami in caratteri tali, che tutta l’accademia di Firenze non ne potette intender tanto che se ne potesse trar costrutto alcuno […]. Io risposi all’amico che me la mandò, che facesse intender al detto Padre che mi scrivesse in carattere più intelligibile, perché qua non aviamo né la sfinge né altri interpreti di misteri reconditi*) (Galilei 2015: XVIII.154).

([13]) See the letters to Mersenne on March 31 and December 6, 1638: AT II.85 and II.464 (the correct date—December 5—can be found in Belgioioso and Armogathe 2015: 848). Descartes speaks about it again in a letter of June 19, 1639 (AT II.565/CSMK 213).

([14]) *Academia Parisiensis viros clarissimos Galilei familiares at amicos Lyncaeos precatur uti sequentibus in Dialogorum* [but referring to the *Discorsi*] *libros notis respondeant* (Mersenne 1932–88: XII.224, 226). In this letter we also find the observations on Galileo’s *Discorsi* sent by Descartes to Mersenne on October 11, 1638 (AT II.279–402; Belgioioso and Armogathe 2015: 784–97, nn. 1–16).

([15]) In the books of Accademia dei Lincei, the reception of the letter is registered on July 1, 1638: see Mersenne 1932–88: XII.225. Santini had brought it to Rome in 1606, giving it to the Jesuit Cristoforo Grienberger, along with the *Algebra nova* by Viète (*In artem analyticam isagoge seorsim excussa. Opere restitutae Mathematicae Analyseos Seu Algebra nova*): see Gatto 1996: 363.

([16]) *Valois à Gassendi*, Mersenne 1932–88: XIII.243–8. Mersenne also had with him books by Roberval and Fermat, and his own *Cogitata physico-mathematica* (Mersenne 1644).

([17]) This is written by Mersenne himself in his *Praefationes* to Mesenne 1647. The fact is relevant because Ricci, with Raffaello Magiotti and Antonio Nardi, represented the “Galilean front”, securing the connection between Mersenne and Torricelli. Ricci, on the other hand, was very suspicious of Mersenne, as proved by the letter written to Torricelli in March 1645: Galluzzi and Torrini 1975: 217–18. In any case, on January 16 Mersenne wrote to Bouilliaud from Rome about the “secrecy” of Italians about their works (Mersenne 1932–88: XIII.315).

([18]) The acquaintances were: Raffaello Magiotti, Bonaventura Cavalieri, Pierre Dyeuré, Cassiano dal Pozzo, Antonio Nardi, Giuseppe Buonaccorsi, Tommaso Cornelio, Gaspare Alberti (successor of Benedetto Castelli as chair in mathematics at Sapienza University),

Lucas Holste (librarian at the Vatican Library), François Bonneau Du Verdus (Roberval’s disciple), Emanuel Maignan, and Antonio Santini, to whom Mersenne, as we have seen, had given a letter addressed to the Galilean circle and who held (after Alberti) the chair of mathematics at the Sapienza in Rome that had been Castelli’s. All of them are somehow connected to the Galilean circle, including Ricci, whose name, of course, does not appear since he is the addressee. The letter has been found at the Biblioteca Palatina in Parma (“Epistolario parmense”, box 282, cc. 38 v.–r.) and was published in Torrini 1981: 178–85. It is also mentioned in Mersenne 1932–88: XVII.3–6.

([19]) Torrini 1981: 183–4 and nn. 10–11.

([20]) Armogathe and Carraud 2001: 103–37.

([21]) Gentile 1910: 464–9.

([22]) Guerrini 1996: 500–7, and about Corazzi, Spallanzani 1992: 36–69.

([23]) See note 14.

([24]) See Pepe 1988: 171–8. See also Gatto 1996.

([25]) Nicenus 1644. On Ricci’s opinion see Torrini 1981: 185, n. 18; see also 182 and 183, nn. 2 and 8.

([26]) Van Schooten 1649.

([27]) See Gatto 1996: 363–7.

([28]) See Garber 2004. Fardella also met Magliabechi (1633–1714) and started a correspondence with him from 1691 to 1709 (see Femiano 1978; see also Femiano 1986).

([29]) There are detailed accounts in Giancotti 1988: 289–93 and in Crasta 1996: 316–17.

([30]) In 1698 the publisher Albrizzi (the same who published the *Galleria di Minerva*) releases in Venice Fardella’s *Animae humanae natura ab Augustino detecta* (Fardella 1698), against the ‘*sectatores*’ of Epicurus and Lucretius.

([31]) The book is published in 1713 in Genova by Antonio Casamarra.

([32]) Gatto 1994.

([33]) Gatto (1996: 367, n. 23) reminds us that “almost all Neapolitan intellectuals devoted themselves to mathematics” (*un po’ tutti gli intellettuali napoletani si diedero allo studio della matematica*), and mentions the names of Luca Tozzi, Lucantonio Porzio, Giovan Battista di Palma, Paolo Mattia Doria, Nicolò Galizia, and Agostino Ariani. About Monforte, see Gatto 1991: 217–32; see also Torrini 1973.

([34]) Gatto 1986: 31–88. About the trial, see Osbat 1974.

([35]) Gatto and Gerla 1987: 43–54.

([36]) Pepe 1990: 483.

([37]) Donzelli 1970; about the Academy of Medinaceli, see Suppa 1971.

([38]) *lungo tempo aspettando qualche specolazione del Sig. Torricelli e del Sig. Mersenne intorno al quesito di V. S., finalmente accorgendomi che costoro si ritrovavano impiegati in altre contemplazioni, né s’arrischiano a far uscir dalla loro penna cosa con maturo giudizio esaminata, ho stimato espediente scrivere alcuni miei pensieri* … (Torrini 1970: 146).

([39]) Torrini 1981: 183 and n. 10. About Cornelio, see Torrini 1970 and 1977; Lojacono 2017; Zito 1997: 131–41.

([40]) Ascione 1990: 203. According to Ettore Lojacono (1996: 415) the exact year of the event is 1650.

([41]) Grimaldi 1964: 5.

([42]) *Nel cominciamento dei miei studi, tutti erano della filosofia di Pier Gassendi seguaci […] Alla perfine in quel tempo non si vantava altro, ch’el senso, e la materia […] Ma […] appresso si bandì la setta di Epicuro, e si abbracciò la dottrina di Renato delle Carte, ed allora niun’altra cosa si andava predicando, che idee confuse, idee avventizie, idee chiare e distinte, reale distinzione, ed altri somiglianti termini di Renato* (Doria 1732: 2). See also Doria 1724 and 1728: I.49.

([43]) Giannone 1723: 114.

([44]) Lojacono 2017.

([45]) Fisch 1953: 521–63.

([46]) See Borrelli 2012: 19–27.

([47]) An Italian translation of *De rerum natura* by Alessandro Marchetti (1633–1714) will be published in 1717 in London with Giovanni Pickard (Marchetti 1717).

([48]) Of Giuseppe Valletta’s manuscript, five extant exemplars are known, all clandestinely printed: three are entitled *Istoria filosofica*, one is entitled *Lettere filosofiche*, and one is entitled *Istoria della filosofia corpuscolare*. A manuscript copy entitled *Notizie, ed autorità cavate da una lettera di N.N. [per] li Diputati della città di Napoli al Papa, intorno al procedimento del Santo Uficio nella detta città, nella quale si difende la filosofia moderna, e si biasima l’aristotelica* has been published by Giacinto Gimma: see Valletta 1999: 29–71. D’Andrea’s manuscript entitled *Apologia in difesa degli atomisti* is mentioned in Borrelli 1995.

([49]) Osbat 1974. The instrumental use has been emphasized, in this trial, of the Inquisition as a weapon against the political-social ambitions of the civil society, accusing its members of atomism and offense to Catholicism: see Cacciapuoti 1997: 153–9.

([50]) De Benedictis 1694. About De Benedictis, see De Liguori 1996: 330–59.

([51]) G. B. De Benedictis translated Gabriel Daniel (1649–1728) into Italian and Latin: see Daniel 1694 and 1690, and De Benedictis 1695 and 1703.

([52]) *al P. Giovan Battista de Benedictis […] per non mostrare, tacendo, di ammettere di essere colpevoli delle sue calunnie scagliato e per dimostrare che erano seguaci di una dottrina che poteva reggere contro un impugnatore tanto debole // al P. Giovan Battista de Benedictis […] per non mostrare che con tacere si confessassero colpevoli delle calunnie, che colui loro avea scagliate; o pur per dimostrare che almeno seguaci erano di una dottrina che potea reggere a fronte di sì fievole impugnatore* (Grimaldi 1964: 3, 4).

([53]) Grimaldi publishes the first “answer” in 1699 and the other two in 1702 and 1703, respectively (Grimaldi 1699, 1702, 1703). Some time later, the “answers” will be condemned by the *Sacra Congregazione dell’Indice* on September 26, 1726.

([54]) Doria 1981: 411–31.

([55]) Spinelli 1753: XLIX.476.

([56]) Doria 1724. Against the modernists, see Doria 1728 and 1732.

([57]) Spinelli 1733: 512.

([58]) Spinelli 1753. The sequence of events is reconstructed in detail in Belgioioso 1999.

([59]) Torrini 1985: 434.

([60]) AT VII.257–391/CSM II.179–267.

([61]) Caramuel y Lobkowitz 1670: II.6, 678.

([62]) Agostini and Orlando 2013.

Giulia Belgioioso

University of Salento

The Creation of Eternal Truths: Issues and Context

Dan Arbib

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Abstract and Keywords

Among the most original of the features of Cartesian thought is the thesis of the “creation of eternal truths”. From the outset this thesis confronts a paradox: although Descartes’s immediate successors considered it fundamental, historians of philosophy have long ignored it, and it was not until the works of Alquié and Rodis-Lewis, and then Marion, that this thesis was given the importance it deserves. In fact—and Descartes’s immediate successors were not deceived—if this thesis is crucial, it is because it points to the heart of Cartesian thought, so the whole of Descartes’s thought can be evaluated in its light. The challenge it poses is the relation between the infinite (God) and the finite (human reason), and it concerns the status of truths and rationality, the question of the equivocity or analogy of being and knowledge, and therefore the status of the possible in the face of divine omnipotence. In order to appreciate the theoretical breadth of this thesis, this chapter attempts to put it in its historical context: among Descartes’s predecessors we find possible opposition to this doctrine as well as anticipations of it, even if these are only partial. Finally, it considers the reception of the doctrine among post-Cartesians.

Keywords: eternal truths, creation, God, equivocity, univocity

(p. 531) AMONG the most original of the features of Cartesian thought is the thesis of the “creation of eternal truths”. From the outset this thesis confronts a paradox: as much as Descartes’s immediate successors considered it fundamental, historians of philosophy have long ignored it, and it was not until the works of Alquié and Rodis-Lewis, and then that of Marion, that this thesis was given the importance it deserves.[1] In fact—and Descartes’s immediate successors were not deceived—if this thesis is crucial, it is because it points to the heart of Cartesian thought, so the whole of Descartes’s thought can be evaluated in its light. The challenge it poses is the relation between the infinite (God) and the finite (human reason), and it concerns the status of truths and rationality, the question of the equivocity or analogy of being and knowledge, and therefore the status of the possible in the face of divine omnipotence. In order to appreciate the theoretical breadth of this thesis, I will attempt to put it in its historical context (in Section 1), where

we will find among Descartes's predecessors possible opposition to this doctrine as well as anticipations of it, even if these are only partial (discussed in Section 2). Finally, I will consider the reception of the doctrine among post-Cartesians (Section 3).

1. Meaning and Presence in Descartes's Works

Descartes's thesis is well known: the "eternal truths" are immutable and necessary in our eyes, but have been created by a free act of God. In fact, this thesis itself includes three parts. 1) The truths have the status of creatures: "The mathematical truths that you call (p. 532) eternal have been established by God and depend on him entirely, as much as the rest of creatures." 2) The truths govern the whole of creation, and thus are laws of the world: "It is God who has established these laws in nature, much as a king establishes laws in his kingdom." 3) They are comprehensible since they are innate in us and constitute the structure of rationality, although God remains incomprehensible, always beyond the finite: "There is nothing in particular that we cannot comprehend if our mind considers it, and they are all *mentibus nostris ingenitæ* […] On the contrary we cannot comprehend the greatness of God, although we know it" (AT I.145/CSMK 23). Note that the three parts of the doctrine are closely related: because God created truths that are laws for the world, the mind can know the world with which rationality agrees, but it cannot comprehend a God who continues to transcend the finite rationality of created beings.

1.1. Presence of the Thesis

It is necessary first to identify the thesis of the creation of eternal truths in the Cartesian corpus. Commentators disagree on this point and are aligned on a scale that goes from those who do not recognize it anywhere[2] to those who admit a diffuse presence,[3] to those who even make it the key to Cartesian thought.[4] This disagreement is not without reason, since the Cartesian thesis often gives new meaning to expressions that are common and in themselves underdetermined. How to interpret, for example, the expression '*fons veritatis*' with which Descartes characterizes God? Is it necessary to opt for a maximalist interpretation by discerning a trace of the creation of eternal truths, or on the contrary to recall that this expression has been common since Augustine, for whom the doctrine of the creation of eternal truths would have been unthinkable? Underdetermination remains.

Whatever analysis one offers of these contentious cases, it is no longer a question of affirming that the doctrine of the creation of eternal truths is only a *hapax* of 1630 or that it at best appears veiled in the corpus. In fact it is the exact opposite, since it is developed consistently from 1630 to 1649. This thesis appears in the letters to Mersenne of April 15 and May 6 and 27, 1630; but equally it is found in the Fifth Replies to Gassendi, the Sixth Replies, the letter to Mesland of May 2, 1644, the *Conversation with Burman*, the letter to Arnauld of July 29, 1648, and the letter to More of February 5, 1649.[5] Other texts, though less sure, seem to allude to it more or less: without doubt *The World*, but also the (p. 533)

Discourse on the Method,[6] *Principles* I.22 and 24,[7] as well as perhaps I.41, and the letter to Elisabeth of October 6, 1645 (AT IV.314/CSMK 272).[8]

1.2. Created Truths, the Divine Creator, and the Relation Between Them

We need to indicate the truths in question, the divine attributes in play, and the kind of relation established between God and his creature. First of all, which truths are they? Descartes announced in the letter to Mersenne of April 15, 1630 that they are mathematical truths, subsequently invoking the "laws of nature". In fact, all truths are concerned here: logical and metaphysical first, as stated in a series of texts,[9] but also mathematical truths[10] and physical principles;[11] finally, the late work explicitly extends creation to ethical truths.[12]

What kind of God is at work here? The Cartesian thesis is motivated by the rejection of the claim that God is dependent on truths identified with his understanding, or truths that his understanding would represent before he acts. Descartes describes a simple alternative: either God submits to pre-existing truths, at the cost of weakening his power, or on the contrary the truths are themselves submitted to the God of truths, a submission that can be expressed only in terms of creation. According to the latter option, omnipotence indicates at the same time the independence of God from the true and the creation of truths. We can draw a series of consequences from this. (a) First, omnipotence is the principal divine attribute involved in the creation of eternal truths in the letters to Mersenne.[13] (b) Next, if God causes the truths, they are comprehensible because they were created to the measure of the human mind: God alone surpasses the finitude of finite rationality and remains incomprehensible.[14] A God who is omnipotent—because he is the founder of rationality—is thus incomprehensible, because he is the foundation of every comprehensible idea. (c) This incomprehensibility is associated with infinitude, following a traditional coupling that allows us to mark divine transcendence with respect to any finite truth: the God of the creation of eternal truths is an "infinite and incomprehensible being". This is not to say that he is inaccessible: he remains intelligible, but our (p. 534) mind cannot encircle him.[15] (d) Descartes considers such intelligibility coupled with the incomprehensibility of the source on the royal model: the distance of the king must be distinguished from his absence; the distance manifests a particular kind of presence, specific to one who enacts a law.[16] (e) Is this to say that divine creation is an arbitrary or gratuitous act? That God acts by pure impulse without any reason for his decision? Though it is true that certain critics will see it this way (notably Leibniz), Descartes has explicitly anticipated the objection in recalling that in God, will, knowledge, and power are identical without even a distinction of reason (*ne quidem ratione*) between them.[17] But insofar as the will of God is inseparable from his understanding, the divine decision could not be arbitrary, since God knows what he wills and wills what he knows. The fundamental truth of the creation of eternal truths is thus incomprehensible, divine simplicity, which prohibits all irrational voluntarism.

If God creates truths, it remains to know the relation established between the former and the latter, and which concepts are to be used to express it. The creative act consists in "establishing" the truths,[18] "disposing" them,[19] simply causing them,[20] or finally decreeing them.[21] From then on, the truths have a relation of entire dependence on God,[22] since they arise from him.[23] At the very least, the audacity of Descartes consists in asking for the causes of the truths themselves, which are endowed not exactly with an essence, but with a reality. Although the letter to Mersenne of May 27, 1630 maintains a distinction between essences and existences, it claims that there is a cause for the essences themselves. In expanding the domain of causal efficacy to essences, the essences themselves are given a kind of reality, or at least a positive ontological status. It is for Descartes to consider a truth—that is to say, an essence—as a creation: even the essence has being, and this being must be caused. God is "the author as much of the essence as of the existence of creatures", hence the maximal extension of causality to all things, including to the objective reality of ideas.

1.3. Meaning of the Thesis

The foregoing description of the Cartesian thesis allows us to discover its implications. The major point is this: the creation of truths establishes a break between finite rationality and the infinite creative act of God. God exceeds our rationality and his essence is not the same as other essences. He exceeds even the principle of non-contradiction since he (p. 535) was free to make it the case that geometrical theorems are not true (Mesland-1644), which characterizes divine indifference properly speaking: "a complete indifference of God is a very great proof of his omnipotence" (SR-2). Paradoxically, the same thesis that affirms equivocity between what is infinite and what is created makes possible human knowledge of the world.

The creation of eternal truths makes possible the exercise of reason in several ways. (a) First, it allows for a foundation of the normativity of our logical laws: our finite intellect is "ruled by the conditions of possibility established by God".[24] Since God causes all truths, and thus also logical laws, all thought whatever will always and definitively be within the limits of the essences freely posited by God. The divine creation of truths defines the transcendental horizon impassible by finite thought and confines the created mind to finitude. Though eternal truths may well appear as contingent *in relation to God*, for us they are necessary. Our thought regulates itself by the principle of contradiction, created by God, without which our thought would deny itself, but it cannot legislate what God can do. Since God posits created truths that are posited for all eternity, these truths gain a form of necessity that eliminates any relativity:[25] they are "such that although God had created several worlds, there could be none whether they fail to be observed" (AT VI.43/CSM I. 132). Thus God "having willed that the three angles of a triangle necessarily equal two right angles, it is now true that this is so, and it cannot be otherwise, and thus for all other things" (SR-1).

(b) To the extent that God founds essences, our rationality is sustained by God, it is backed by his creative act: the attainment of truth is possible, and ideas are not the product of a mirage. Descartes has a very great awareness that it is necessary to found reason to *confirm* it, to render it stable and strong. (c) Thus, it is precisely this break between a finite rationality and its establishment by an incomprehensible omnipotence that allows metaphysics to play its full role, as a discourse on foundations. Also, the creation of eternal truths makes it possible, from the metaphysical turn of 1629–1630, to take a step back from the method that had occupied Descartes since 1619–20 in his unfinished works, *Studium bona mentis* and the *Rules for the Direction of the Mind*. Metaphysics allows, by means of the creation of eternal truths, the founding of the method itself.[26] Thus the method finds itself surpassed by its foundation.

But the creation of eternal truths not only founds reason: it makes the world knowable for humans, for two reasons. The first statement of this is concomitant with the writing of *The World*, in which it is held that the understanding can have an idea of the essence of material things without recourse to the senses or imagination. The essence of material things can be seen by the understanding (even if it works better aided by the imagination[27]), whereas in Aristotle knowledge of material things was tied to the imagination. For (p. 536) Descartes, then, the world can be stripped of all qualitative appearances, of the substantial forms of ancient physics, and physics will become geometrical, under the control of the understanding. But the role of the creation of eternal truths is also illuminated by the correlation between the laws of nature and the innate ideas that we have in us. Whereas according to Plato essences are above nature, and according to Aristotle are only the concrete beings, the *ousiai* (mathematical beings that are abstractions from sensible things and less real than them), according to Descartes essences and concrete beings are on the same level: *the structure even of extension will be mathematical, geometrical*. We can hold that geometrical extension is truly the essence of matter. The creation of eternal truths therefore signifies that we can *know* the real, even if we have to confront reality with experience: our thought is adapted to the world.[28] The world is intelligible in virtue of the correlation between our innate ideas and the laws of nature. Consequently, it is possible to enunciate a priori the foundations of physics, for example the impossibility of a vacuum (see Arnauld-1648), or to deduce the properties of extension by means of the idea in us: indefinite divisibility, negation of the vacuum, indefiniteness of space, mathematization of extension.

2. Descartes’s Predecessors

The originality of the Cartesian doctrine is a fact that, since Gilson, has constantly been sustained (see Gilson 1913: 157). We owe to Rodis-Lewis, then to Marion, the further specification of the polemical framework, at once epistemological and metaphysical, that underlies the affirmation of this doctrine and renders the position of Descartes unique.

2.1. Opponents

One point has been established: the Cartesian thesis is opposed to all univocal positions of his predecessors or contemporaries. Thus it is opposed to the logical and metaphysical univocity of *ens*, sustained by the second scholastics, notably Vasquez (see Vasquez 1631: 510a) and Suárez.[29] Also, there is opposition to the metaphysical and physical univocity at the foundation of the mathematical treatment of physics, as in Kepler,[30] Galileo,[31] or (p. 537) Mersenne,[32] for whom mathematical physics is paid for by a foundation in the divine understanding, at the price of a radical univocity. But the Cartesian thesis is also opposed to all forms of Neoplatonic emanationism, and above all to that of its principal representative in the seventeenth century, Bérulle, whose influence on Descartes has been much exaggerated: to say that truths "do not emanate from God as from the sun" is to oppose Bérullian doctrine quite directly.[33] The force of the Cartesian position consists in forming a front against the univocity common to Bérullian emanationism, modern scholasticism, and the scientific foundationalism of the classical age: in all cases, truths were not posited freely by God, but discovered as founded in him, by procession or identification. Moreover, such univocitistic positions could be based on the still important positions of Saint Augustine, Saint Thomas,[34] Duns Scotus, or even the ever-present Stoicism.[35] As different as their respective positions are, they are equally subject to the Cartesian critique.

2.2. Partial Anticipations

However, the novelty of the Cartesian position does not prevent the discernment, with Marion and others, of some partial anticipations of Descartes's thesis. For example, Luther anticipates the Cartesian rejection of the submission of God to destiny,[36] but also Montaigne, who, refusing to limit the power of God, can uphold the Eucharist against the Protestants (*Essais*, II.12; Montaigne 1965: 527–8). In the Montaigneian critique of the Stoics,[37] we will easily recognize "one of the primary sources of the polemic of 1630" (Marion 1991: 129). The polemic concerning the Eucharist is found in a scholastic such as Scipion Dupleix. How to respond to those who reject scholasticism on the grounds that God cannot be "at the same time in different places", "the accidents remaining without their supposita"? The response of Dupleix: "Among Christians, certainly it suffices to say only with Homer, *He can do all things*, without entering further into a proof of this omnipotence" (Scipion Dupleix 1610: 818; cf. 831–2).

(p. 538) 2.3. Converging Lines

But these anticipations remain anecdotal without the previous theoretical decisions that made the doctrine of the creation of eternal truths possible. We will discuss three points: (a) the tendency to emancipate divine ideas from the divine understanding; (b) the debates over divine omnipotence; and (c) the promotion of divine simplicity and the lack of distinction among God's attributes.

(a) First, the creation of eternal truths presupposes that divine ideas are distinct from the divine understanding. But though he did not go as far as to affirm that they had the status of creatures, has Duns Scotus not already affirmed this? On this account, it is very clear that, without having endorsed the creation by God of eternal truths, which might not have been conceivable for him, Scotus has made the Cartesian affirmation possible since he has rendered acceptable a distinction between the divine understanding and its ideas.[38]

(b) But the Cartesian thesis also reflects the debates that, since the eleventh century, have agitated theologians on the subject of divine omnipotence, notably the distinction between *potentia absoluta* and *potentia ordinata* introduced by Hughes of Saint-Victor.[39] Although it is found in all the major theologians (Abelard, Peter Lombard, Albert the Great, Thomas Aquinas, Scotus, William of Ockham, etc.), there are two different interpretations of the distinction, between which Descartes has chosen. On the one hand, according to Albert the Great, Thomas Aquinas, and Ockham, *potentia absoluta* is power understood abstractly, independently of the effectively established order, and concealing unactualized possibilities; that it is logically prior to *potentia ordinata* indicates neither that it is at work nor that God can intervene in the world in an arbitrary and gratuitous manner.[40] On the other hand, a current from the thirteenth century posits the order of nature as emanating from an unfathomable decree of the divine will: *potentia absoluta* thus exceeds *potentia ordinata*, and allows for the possibility of a miraculous—extra-ordinary—action of God, a position followed by the successors of Scotus, as well as by the nominalists (Holcot, Wodeham, D'Ailly), and Suárez himself. Descartes incontestably favors this second tendency, which supports the royal metaphor.

The voluntarist conception of Scotus is allied with the birth of modern law (see Oakley 1916), since Scotus explicitly compares God to a monarch: all order is such by divine decision. Thus, God can never act *inordinately*, since "*bonum qui volitum*".[41] This conception will be repeated by Erasmus, Thomas More, and even the Conimbrans and Suárez, but also by Luther, then in the seventeenth century by Calvinists as well as Lutherans. But Descartes went farther than Scotus, because the latter submitted God to (p. 539) the principle of contradiction.[42] Finally, Mehl has drawn attention to the context of reflection on first principles and divine omnipotence in Bartholomeus Keckermann (1571/2–1608), Clemens Timpler (1567/8–1624), Johann Heinrich Alsted (1588–1638), and especially in Christoph Besold (1577–1638), for whom reason is surpassed by divine omnipotence, the source of necessity and possibility. Such an idea is found already in the *Works* of Valentin Wiegel (1553–88), which develops it by means of Platonic and Cusanian theology. According to Mehl, by means of the creation of eternal truths Descartes participates in a greater movement, by which the principle of contradiction is demoted from the principle governing the totality of *ens* to the expression of the limitation of the human intellect (Mehl 2001: 161–4).

(c) Finally, the foundation of the doctrine of the creation of eternal truths is divine simplicity, since it is by one and the same act that God knows, wills, and creates truths.[43] This divine unity can be authorized by two major precedents. On the one hand, there is the precedent of Augustine, whom Descartes cites explicitly[44] but also alters since Augus-

tine never supported the creation of eternal truths.[45] On the other hand, there is the precedent of William of Ockham, who rejects any distinction between the will and understanding of God.[46] The difference, however, is that for the nominalists, divine power extends to all that does not imply a contradiction, whereas for Descartes divine omnipotence surpasses the principle of contradiction in its act of establishing it.

What is affirmed here is not that the Cartesian thesis resulted from a "synthesis" of heterogeneous theological decisions, but only that it was able to allow for the convergence of previous doctrinal lines.

3. Posterity

3.1. Overview

It remains to evaluate the posterity of Descartes's thesis. How did Cartesians and the immediate posterity of Descartes receive it?[47] One thing is sure: "The confrontation with the idea of the dependence of eternal truths on God constitutes, during nearly a century, a sort of obligatory chapter in the work of the most important philosophers" (p. 540) (Gasparri 2007a: 323). In fact, the reception was not homogeneous; better, it seems that we can discern degrees in the acceptance or rejection of this doctrine. Certain Cartesians who are faithful to Descartes accept it without admitting the superiority of God over the principle of contradiction; others reject it, but by so distorting it that it becomes unrecognizable. It is nonetheless possible to make four remarks:

1) The degree of acceptance of the thesis of the creation of eternal truths depends on the insertion of the thought of Descartes into often polemical local contexts. Paradoxically, both Catholic and Protestant clans interpret it as part of their offensive against the competing camp. In France, for example, the Cartesian school confronts a Catholic, notably Jesuit, offensive that accuses it of proximity to theses of the Huguenots: the thesis of the creation of eternal truths is accused of favoring a universal necessitarianism, Stoic fatalism, Spinozistic necessitarianism (for example by the Jesuit Louis Le Valois[48]), or the wholly Lutheran negation of free will. However, reciprocally, the Cartesian theory is assimilated by the Protestants to an element of a Catholic apologetic strategy of imposing dogmas not admitted by the Reformed, and from the end of the seventeenth to the beginning of the eighteenth century, it is discussed especially by French refugees in the Netherlands (Bayle, Poiret). And even, the Protestants do not form a homogeneous clan: the Cartesian thesis appears sometimes as a voluntarism that is too radical (for Leibniz, for example), judged to be close to the position of Calvin by those who prefer a weaker stance (as for the Cambridge Platonists). In the Netherlands Cartesian thought is associated with debates over the freedom of philosophy in university teaching, and examined through the confrontation between Lutherans and Calvinists and between different Reformed tendencies. In England, it is the thought of Descartes in general that remains subject to bitter discussion.

2) In this debate, it is impossible to isolate the *authorities* that serve as the standard for the acceptance or the rejection of the Cartesian thesis: certain authorities remain rather indeterminate for the explanation of the two sides. This is notably the case with Saint Augustine.[49] On the one hand, Desgabets, Pierre Cally, and Pierre-Sylvain Régis cite him in support of the creation of truths: *Voluntas utique tanti conditoris, rei cujusque natura est*.[50] But on the other hand, it is also to him that the opponents of the Cartesian thesis appeal, as for instance in the case of Malebranche or the Cambridge Platonists (see Gasparri 2007b: 27).

3) The rejection or acceptance of Cartesian posterity is not free from significant theoretical issues. First, the status of reason: while Descartes intended, by the creation of eternal truths, to found reason and thereby to strengthen it, a number of his successors (Leibniz, for example) see it as involving the weakening of reason. Next is the connection of omnipotence to the possibility of the dogma of the Eucharist: if God creates the possible, he overcomes the principle of non-contradiction and the Eucharist is no longer a (p. 541) scandal.[51] Finally, the reception of the Cartesian thesis is related to the way in which posterity dissipates the equivocations or the difficulties that are believed to be present in Descartes's texts (see Schmaltz 2002: 2).

4) Finally, in a general way, one can say that whatever deformities they impose on it, the minor Cartesians tend to defend the Cartesian thesis, whereas the "great" post-Cartesian early modern philosophers—including the Cartesian Malebranche—reject it.

3.2. Opposition of the Great Post-Cartesians

It is therefore necessary to examine first the rejection of the great early modern philosophers, even if only in general terms. For Spinoza, the Cartesian doctrine contradicts the immanence of causality; for Malebranche, divine immutability; for Leibniz, the principle of sufficient reason. Each of these critiques relates to the presentation of the Sixth Replies, §§6 and 8, obviously the weakest of the presentations since in it Descartes seems to support the primacy of the understanding over the will.[52]

The position of Spinoza is particularly important, since his commentary on the *Principles* of Descartes and his *Metaphysical Thoughts* will lead his contemporaries to confuse the Spinozistic and Cartesian positions. This is particularly so in the case of the hypothesis that God could have endowed us with a different intellect,[53] a position that Spinoza denies explicitly in *Ethics* I, prop. 33, but also a position that Descartes never defended! However, it is "in the formulation of Spinoza that the theory was discussed in the second half of the 1660s by Geulincx, then by Buchard De Volder in his polemic with Huet, by Cornelis Bontekoe, the disciple of Geulincx, by the 'Desgabetsian' Jean Sperlette, by Jean Le Clerc, and perhaps by the young Locke" (Gasparri 2007a: 334). From then on, the rejection of the creation of eternal truths suffers from the rejection of the Spinozism associated with it. Its supporters in the Netherlands renounce it in order not to be led to Spinozism (Velthuysen, Wittich); others maintain the Spinozist form of the *Metaphysical Thoughts* (Burman *père* and *fils*) but without attributing it to Spinoza. In fact, Spinoza's

disagreement is complex. His proximity to Descartes is indicated by his vocabulary and by the fact that he considers truths as effects of God thought as cause.[54] However, this proximity conceals a greater dissimilarity: first because Spinozistic immanent causality (*Ethics* I, prop. 8, Spinoza 1925: II.49–51/Spinoza 1985: 412–16), in contrast to the transcendent causality of (p. 542) Descartes, prohibits any discrepancy between the essence of God and his productions (*Ethics* I, prop. 33, schol. 1 and 2, in Spinoza 1925: II.74–6/ Spinoza 1985: 436–9). Then, because divine causality can only be linked to rationality, not establish it (*Ethics* I, prop. 17, schol., Spinoza 1925: II.61–3/Spinoza 1985: 425–8), so that the necessary unfolding of the divine essence occurs according to the necessity of the deduction of things from their essence. Finally (and consequently), because truths are immanent to God himself, we know as God knows.[55] Therefore, the divine indifference of the Sixth Replies (§§6 and 8) simply reverses human indifference, which is itself illusory.

The relation of Malebranche to the creation of eternal truths started with a misunderstanding, because of an equivocal phrase in the first and second editions of the *Search after Truth* (*Recherche de la vérité*; 1674): "I call necessary truths those that are immutable by their nature, and because they have been established by the will of God, which is never subject to change" (*Search* I.3.2, in Malebranche 1958–78: I.63).[56] There seems to be a hesitation here between founding necessity in the nature of truths or founding truths in divine institution, as Foucher saw.[57] Malebranche would respond in 1675–7 by clarifying his anti-Cartesian position.[58] But it is truly the *Elucidations* (1678) that mark the departure, even if the vision in God, the rejection of innatism, and the necessity that God knew prior to creation make Malebranche already an opponent of Descartes in 1674.[59] Two arguments stand against the Cartesian thesis. (a) If truths were founded by God, they would not be immutable: "Do we see clearly that God cannot stop willing what he has willed with a will entirely free and indifferent?" (b) If a divine decree is necessary for the creation of truths, one needs to ask: "But where do men see this decree? Has God created some being representative of this decree?" (Elucidation X, in Malebranche 1958–78: III.132). Against this, Malebranche will hold that "this reason is not […] distinguished from himself [God]: it is thus coeternal and consubstantial". This is why when God himself obeys it, he obeys himself: "we conceive it in a sense to be more independent than God himself. Because God can act only according to this reason; he depends on it in a sense: it is necessary that he consult it and that he follow it" (Malebranche 1958–78: III.131). It thus has no cause, and truths are independent of God[60]—who does not rise above the principle of contradiction, but submits himself to it.[61]

The rejection by Leibniz is no less fundamental and pregnant with consequences for learned Europe, since Leibnizian reflection will orient the interpretation of the creation of truths in the German historiography of the eighteenth century (Brucker, (p. 543) Von Mosheim, Wolff). Though the premises of his rejection are presented during the years 1660–70, the connection between the rejection of the creation of eternal truths and the adoption of the principle of reason is posited by Leibniz only in 1676 in a letter to Fabri. In a January 1680 letter to Philipp, Leibniz is indignant: "if even the truth depends only on the will of God and not on the nature of things, and the understanding is necessarily before the will […], the understanding of God will be before the truth of things and by

consequence will not have the truth for an object. Such an understanding is without doubt nothing but a chimera" (Leibniz 1875–90: IV.285). Put another way, if "the will of God takes the place of reason", it will become unreasonable (*Theodicy*, §196, Leibniz 1875–90: VI.232), because it is without reason; it thus contradicts the principle of reason. Far from founding reason, as with Descartes, the creation of eternal truths weakens it since it contradicts the principle of reason. Suddenly the power of the Cartesian God, deprived of "his wisdom and his justice or rather of the understanding and will" equals "a certain unbridled power from which everything emanates, which deserves the name of nature rather than of God". Leibniz thus makes Spinoza and Descartes equivalent (Leibniz 1875–90: IV.344). For Leibniz, "Necessary or eternal truths […] never depend on the decrees of God (whatever the Cartesians say)."[62] As with Malebranche, a strict univocity of knowledge follows: "One can say that created minds differ from God [only?] as more to less or finite to infinite" (Leibniz 1875–90: II.125).

Apart from the three massive oppositions, we can distinguish (a) the position of Bossuet (1627–1704), according to the posthumous work, *Introduction to Philosophy, or Knowledge of God and the Self* (*Introduction à la philosophie ou De la connaissance de Dieu, et soi-même*; 1722). Descartes is not named there, but the phrase 'eternal truths' obviously refers to him. Even if God "is not dominated by any necessity", chapter V announces by the title of section 5: "Intelligence has for its object eternal truths, which are nothing other than God himself, where they always subsist, and are always perfectly understood" (Bossuet 1672: 270). According to (b) the situation in England, it is very clear that in the opinion of the Cambridge Platonists the creation of eternal truths implies the same kind of contingency as that of moral principles in the "voluntarism" of Hobbes (Henry More and Ralph Cudworth, then later John Norris and Samuel Clarke). In reality, the only one to defend the Cartesian doctrine in England is the Franciscan missionary Antoine Le Grand, prolific author of Cartesian manuals.[63]

3.3. Favorable Receptions

It is finally possible to turn to a posterity less hostile to the creation of eternal truths, or to authors the status of whose views is undecidable. An exemplar of radical Cartesianism,[64] the Benedictine Robert Desgabets (1610–78), whose role in the diffusion of Cartesianism was fundamental, often recalls the creation (p. 544) of eternal truths, in various texts, published and in manuscript. Desgabets's texts will be read and critiqued by the learned world, from the Jesuits Antoine Rochon and Louis Le Valois to Foucher and Malebranche, through whom his work will spread in France (Pierre-Sylvain Régis, Pierre Cally, Etienne Chauvin), to the Netherlands and Germany (Jean Sperlette, Barthélémy Senoq, Jean Darmanson, Antoine Le Gallois; see Gasparri 2007a: 328–9). Though Desgabets adopts the Cartesian position in chapter 5 of his *Treatise on the Indefectibility of Creatures* (*Traité de l'indéfectibilité des créatures*, begun in 1653/4, remaining in manuscript but circulated widely underground), he shapes it to make it serve his theory of the "indefectibility of creatures", which in turn is related to his explanation of transubstantiation. Certainly eternal truths depend on God, but so also does every created substance, which is thereby immutably eternal or "indefectible". The Cartesian thesis of the eternal

creation of truths thus supports Desgabets's own doctrine of the eternal creation of all things. Consequently, even the category of the possible loses all pertinence, since in extending the immutability of truths to substances, Desgabets deprives the possible of ontological validity. Possible things have a real existence as modes of substance, to which it is necessary to add the critique of Cartesian inspiration, according to which the possible would limit divine omnipotence.[65] Desgabets's position will be repeated and amplified by Régis, champion of equivocity between creatures and a "supersubstantial" God, who also holds "*That God is the author of possibility and impossibility*" (Régis 1691: 193–9).

The authors of Port-Royal hold a position that is difficult to discern, even if they champion the glory of a very Cartesian divine omnipotence. For example, Arnauld offers a position that is difficult to decipher: in comparing texts, it seems that, despite his surprising silence, Arnauld had some sympathy for this doctrine, either for the unity of the created, or for the conception of divine omnipotence.[66] At the very least, this thesis would have been possible for him if the equivocity between God and his creatures had been philosophically conceivable and if the new situation of theodicy had not prevented its expression in advance (see Carraud 1996). As for Pascal, even if he can accept the thesis, he considers it as useless for salvation: "The God of Christians does not consist in a God who is simply the author of geometrical truths and the order of the elements: that is on the side of the pagans."[67] His position is therefore subtle: he accepts the Cartesian thesis of an "infinite and incomprehensible" God, who is better than the God of "Styx and the destinies", but stigmatizes the radical insufficiency of this God in comparison to the God of the Christians.[68]

The doctrine of the creation of eternal truths is not an appendix to Cartesian thought. Though it cannot create a break between the Being and the object of science,[69] since on the contrary it works to identify the latter with the former, it can be interpreted as a hindrance to the establishment of the univocity of being and of knowledge, which explains why the grand early modern philosophers wanted to get rid of it. But though (p. 545) the Cartesian breakthrough erodes after Descartes, the march toward univocity was neither regular nor straight: the creation of truth is linked to a differentiated and contrasted reception of Cartesianism. Such a contrast can even be found in the heart of Descartes's corpus, since the creation of eternal truths blurs the coherence of a metaphysics that is offered as a thesis on the foundation of truth (1630) with a *philosophia prima* that tries to recapture this foundation by means of an order and a rationality that are themselves well founded (1641).[70]

Translated by Tad Schmaltz

References

Alquié, Ferdinand (2000), *La découverte métaphysique de l'homme chez Descartes*, 6th edition. Paris: Presses universitaires de France.

Arbib, Dan (2017), *Descartes, la métaphysique et l'infini*. Paris: Presses universitaires de France.

Bossuet, Jacques-Bénigne (1672), *Introduction à la philosophie ou De la connaissance de Dieu, et soi-même*. Paris: Robert-Marc d'Espilly.

Bouchilloux, Hélène (2006), "Descartes et saint Augustin: la création des vérités éternelles", *Revue philosophique de la France et de l'étranger* 131: 147–61.

Boulnois, Olivier (1994), *La puissance et son ombre*. Paris: Aubier.

Boutroux, Emile (1927), *Des vérités éternelles chez Descartes*. Paris: Alcan.

Carraud, Vincent (1990), *Pascal et la philosophie*. Paris: Presses universitaires de France.

Carraud, Vincent (1996), "Arnauld, théologien cartésien? Toute-puissance, liberté d'indifférence et création des vérités éternelles", *XVIIe Siècle* 191/2: 259–76.

Desgabets, Dom Robert (1983), *Œuvres philosophiques inédites*, 7 vols. Amsterdam: Quadrature.

Foucher, Simon (1969), *La critique de la Recherche de la vérité*, ed. R. A. Watson. New York and London: Johnson Reprint Corp.

Galilei, Galileo (1890–1909), *Opere*, 20 vols. Florence: Edizione Nationale.

Gasparri, Giuliano (2007a), "La création des vérités éternelles dans la postérité de Descartes", *Revue de la France et de l'étranger* 132: 323–36.

Gasparri, Giuliano (2007b), *Le grand paradoxe de M. Descartes*. Firenze: Olschki.

Gilson, Etienne (1913), *La liberté chez Descartes et la théologie*. Paris: Vrin.

Gilson, Etienne (1952), *Jean Duns Scot: Introduction à ses positions fondamentales*. Paris: Vrin.

Gilson, Etienne (1979), *Index scolastico-cartésien*, 2nd edition. Paris: Vrin.

Gouhier, Henri (1937), *Essais sur Descartes*. Paris: Vrin.

Gouhier, Henri (1987), *La pensée métaphysique de Descartes*, 4th edition. Paris: Vrin.

Gueroult, Martial (1953), *Descartes selon l'ordre des raisons*, 2 vols. Paris: Aubier.

Kepler, Johannes (1938–59), *Gesammelte Werke*, ed. Max Caspar, 21 vols. Munich: Beck.

La Mothe Le Vayer (1988), *Dialogues faits à l'imitation des Anciens*, ed. André Pessel. Paris: Fayard.

Laporte, Jean (1923), *La doctrine de Port-Royal: Les vérités de la grâce*. Paris: Presses universitaires de France.

Le Grand, Antoine (1671), *Philosophia veterum et mente Rentati Descartes, more scholastico breviter digesta*. London: J. Martyn.

Le Grand, Antoine (1672), *Institutio philosophiae*. London: J. Martyn.

(p. 546) Le Valois, Louis (1680), *Dissertation sur la prétendue possibilité des choses impossibles*, in *Sentiments de M. Descartes touchant l'essence et les propriétés du corps, opposés à la doctrine de l'Eglise, et conformes aux erreurs de Calvin, sur le sujet de l'Eucharistie, avec une dissertation sur la prétendue impossibilité des choses impossibles*. Paris: Etienne Michallet.

Lefevre, Henri (1958), *Le criticisme de Descartes*. Paris: Presses universitaires de France.

Leibniz, Gottfried Wilhelm (1875–90), *Die philosophischen Schriften*, ed. Carl I. Gerhardt, 7 vols. Berlin: Olms.

Luther, Martin (1913), *De servo arbitrio*, ed. Otto Clemen. Bonn: Marcus and Weber.

Malebranche, Nicolas (1958–78), *Œuvres complètes*, ed. André Robinet, 20 vols. Paris: Vrin/CNRS.

Marion, Jean-Luc (1981), *Sur la théologie blanche de Descartes*. Paris: Presses universitaires de France.

Marion, Jean-Luc (1986), *Sur le prisme métaphysique de Descartes*. Paris: Presses universitaires de France.

Marion, Jean-Luc (1991), *Questions cartésiennes*. Paris: Presses universitaires de France.

Marion, Jean-Luc (1996), *Questions cartésiennes II*. Paris: Presses universitaires de France.

Mehl, Edouard (2001), *Descartes en Allemagne*. Strasbourg: Presses universitaires de Strasbourg.

Mersenne, Marin (1624), *L'impiété des Déistes, Athées et Libertins de ce temps*. Paris: Pierre Bilaine.

Montaigne, Michel de (1965), *Essais*, ed. Pierre Villey, 3 vols. Paris: Presses universitaires de France.

Moreau, Denis (1999), *Deux cartésiens: La polémique Arnauld-Malebranche*. Paris: Vrin.

Ndiaye, Aloyse Raymond (1991), *La philosophie d'Antoine Arnauld*. Paris: Vrin.

Ndiaye, Aloyse Raymond (1996), "The Status of the Eternal Truths in the Philosophy of Antoine Arnauld", in Elmar J. Kremer (ed.), *Interpreting Arnauld*. Toronto, Buffalo, and London: University of Toronto Press, 64–75.

Oakley, Francis (1916), "Medieval Theories of Natural Laws: William of Ockham and the Significance of the Voluntarist Tradition", *Natural Law Forum* 60: 65–83.

Pascal, Blaise (1963), *Œuvres complètes*, ed. Louis Lafuma. Paris: Seuil.

Régis, Pierre-Sylvain (1691), *Système de philosophie contenant la logique, métaphysique, physique et morale*. Lyon: Anisson, Posuel & Rigaud.

Robinet, André (1965), *Système et existence dans l'œuvre de Malebranche*. Paris: Vrin.

Rodis-Lewis, Geneviève (1971), *L'œuvre de Descartes*, 2 vols. Paris: Vrin.

Rodis-Lewis, Geneviève (1981), "Polémiques sur la création des possibles et sur l'impossible dans l'école cartésienne", *Studia cartesiana* 2: 105–23.

Rodis-Lewis, Geneviève (1982), "Les essences éternelles et leur création: le détournement d'un texte augustinien", *XVIIe Siècle* 135: 211–15.

Schmaltz, Tad (2002), *Radical Cartesianism*. Cambridge: Cambridge University Press.

Scipion Dupleix (1610), *La métaphysique*. Paris: Salis.

Spinoza, Benedictus (1925), *Spinoza Opera*, ed. Carl Gebhardt, 4 vols. Heidelberg: Carl Winters.

Spinoza, Benedictus (1985), *The Collected Works of Spinoza*, vol. 1, ed. and trans. Edwin Curley. Princeton: Princeton University Press.

Suarez, Francisco (1856–78), *Opera omnia*, 28 vols. Madrid: Louis Vivès.

Vasquez, Gabriel (1631), *Commentarium ac disputationum in Primam Partem sancti Thomae tomus*. Lyon: Jacob Cardon.

Notes:

([1]) Except perhaps Boutroux 1927.

([2]) Gueroult 1953: I.24; Gouhier 1937: 189.

([3]) Rodis-Lewis 1971: I.132–6.

([4]) Alquié 2000: 90; Marion 1981.

([5]) The particular passages, giving the abbreviations used for references in this chapter, are as follows: To Mersenne, April 15, 1630, AT I.145–6/CSMK 22–3 [Mersenne-1630a]; To Mersenne, May 6, 1630, AT I.149–50/CSMK 24–5 [Mersenne-1630b]; To Mersenne, May 27, 1630, AT I.151–2/CSMK 152 [Mersenne-1630c]; Fifth Replies, AT VII.380/CSM II. 261 [FR]; Sixth Replies, AT VII.431/CSM II.291 [SR-1] and AT 435/CSM II. 293–4 [SR-2]; To Mesland, May 2, 1644, AT IV.118–19/CSMK 234–5 [Mesland-1644]; the *Conversation with Burman*, AT V.166/CSMK 348 [*CB*]; To Arnauld, July 29, 1648, AT V.223–4/CSMK 358–9 [Arnauld-1648], and To More, February 5, 1649, AT V.271–4/CSMK 362–4 [More-1649].

([6]) Cf. Lefèvre 1958: 11, discussed in Gouhier 1987: 245.

([7]) Following Rodis-Lewis (1971: I.135, II.490).

([8]) The particular passages, with some abbreviations for later references in the chapter, are *The World* (AT XI.43, 47/CSM I.132, 134; *Discourse on Method* II, AT VI.21/CSM I.121 [*DM* II], and V, AT VI.41/CSM I.131 [*DM* V]; *Principles of Philosophy* I.22, AT VIIIA.13 [*PP* I.22], I.24, AT VIIIA.14/CSM I.201 [*PP* I.24], and I.41, AT VIIIA.20/CSM I.206); To Elisabeth, October 6, 1645, AT IV.314/CSMK 272.

([9]) Mersenne-1630a; To Mersenne, May 27, 1638, AT II.138/CSM I.102–3 (*totum majus sua parte*) [Mersenne-1638]; SR-1 (*ratio veri*); *PP* I.22 and I.24; Mesland-1644; Arnauld-1648 (*ratio veri*); More-1649.

([10]) As in Mersenne-1630a, -1630b, -1630c, -1638; FR; SR; *PP* I.24; Arnauld-1648; More-1649.

([11]) The letter of April 15, 1630 already indicated it as well as *The World*.

([12]) SR-1 (*boni idea*); *PP* I.22; *CB*; Arnauld-1648.

([13]) Mersenne-1630a, -1630b, -1630c; SR-1 and -2; *PP* I.22; Mesland-1644; Arnauld-1648; More-1649.

([14]) Mersenne-1630a, -1630b, -1630c; SR-1; Mesland-1644; Arnauld-1648.

([15]) Cf. the difference between *intelligere* and *comprehendere*, structuring the Cartesian corpus: First Replies, AT VII.112–13/CSM II.81; To Mersenne, January 21, 1641, AT III. 284/CSMK 169; Mesland-1644.

([16]) The royal model is present from the beginning to the end of Descartes's career: first set out in the letter to Mersenne of April 15, 1630, it is repeated in the *DM* V; SR-2; *CB*; More-1649.

([17]) On this point, cf. Mersenne-1630a and -1630c; FR; SR-1 and -2; Mesland-1644.

([18]) Mersenne-1630a; *DM* II; Mesland-1644.

([19]) Mersenne-1630c; FR.

([20]) According to a causality that is itself reduced to efficient causality: Mersenne-1630c; SR-2; *PP* I.22 and I.24; Arnauld-1648; More-1649.

([21]) *AT V.166*.

([22]) Mersenne-1630a, -1630b; FR; Arnauld-1648.

([23]) *Discourse* IV, AT VI.38/CSM I.130; *PP* I.22.

([24]) Rodis-Lewis 1971: I.129; Arbib 2017: 325–9.

([25]) In acquiring a form of eternity: the expression in AT I.145 (*vous nommez éternellez*) is counterbalanced later, in AT I.146.

([26]) As he will affirm in the *Conversation with Burman*, AT V.160/CSMK 343: the ideas of possible things "as well as all the rest depending on God, his will is not only the cause of what is actual and what is to come, but also of what is possible and of the simple natures, and there is nothing we can think of or ought to think of that should not be said to depend on God": even the simple natures depend on God.

([27]) To Elisabeth, June 28, 1643, AT III.291–2/CSMK 227.

([28]) See, for example, *DM* V.

([29]) *Rursus neque illae enunciationes sunt verae quae cognoscuntur a Deo, sed potius ideo cognoscuntur, qui a verae sunt, alioqui nulla reddi possest ratio, cur Deus necessario cognosceret illas esse veras* (Suarez 1856–78: XXVI.297). Descartes returns to exactly this sentence: *Il ne faut […] pas dire que si Deus non esset, nihilominus istae veritates essent verae: car l'existence de Dieu est la première et la plus éternelle de toutes les verities …* (Mersenne-1630b).

([30]) *Rationes creandum corporum matheamticae Deo coaeternae fuerunt, Harmonice Mundi*, IV.1 (Kepler 1938–59: VI.219); or: *Geometriae rationes Deo coaeternae sunt, Epitome*, IV.1.3, (VII.267); and: *Geometria ante rerum ortum Menti divinae coaeterna, Deus ipse (quid enim in Deo, quod sit ipse Deus?), exempla Deo creandi mundi suppeditavit, Harmonice Mundi*, IV (VI.31).

([31]) "according to the truth that mathematical demonstrations make known to us, it is the same as divine wisdom" (Galilei 1890–1909: VII.128–9).

([32]) Cf. Marion 1981: 161–78; and notably, from Mersenne: *il faut confesser qu'il y a une vérité éternelle, laquelle ne dépend d'ailleurs et est Dieu même* (*L'impiété des Déistes*, ch. VI, in Mersenne 1624: 113).

([33]) Cf. Marion 1981: 140–59.

([34]) Thomas Aquinas, *Summa contra Gentes*, II.25, refuted word for word by Descartes in Mersenne-1630c and SR-I.

([35]) Cf. La Mothe Le Vayer (1988: 309): *les stoïciens ont fait leur sage égal et quelque fois supérieur à Dieu, lequel ils ont assujetti à leur célèbre Destinée*.

([36]) For example, on the subject of Virgil: "This poet has done nothing other than indicate that, as in the fall of Troy, in the foundation of the Roman empire destiny does more than the effort of all men, and it thus imposes its necessity on things and on men. In the end, he submits his two immortal gods to destiny, to which even Jupiter and Juno yield" (Luther 1913: III.110, cited in Marion 1996: 128).

([37]) *Essais*, II.12 (Montaigne 1965: 527–8): *Combien témérairement ont-ils attaché Dieu à la destinée (à la mienne volonté, qu'aucun du surnom de chrétien ne le fassent pas encore !) et Thalès, Platon et Pythagore l'ont asservi à la nécessité*.

([38]) On this point, cf. Gilson 1952: 283.

([39]) See Boulnois 1994.

([40]) For example, according to Ockham the distinction is a distinction of reason, but divine power is one and indivisible; and even though creation is contingent, order itself is not.

([41]) *Ordinatio*, dist. 44.

([42]) Gilson 1913 : 128–38. For Scotus, even if God did not exist, the properties of a triangle would remain necessary; see *Reportata Parisiensia*, Prol., III, q. 4, cited in Gilson 1979: 357.

([43]) Mersenne-1630c; SR-2.

([44]) *Confessiones*, XIII 38: *Quia vides ea, sunt etc.*, cited by Descartes in his letter to Mesland of May 2, 1644, AT IV 119/CSMK 235.

([45]) On the subject of *De civitate Dei*, XXI.7, see Bouchilloux 2006.

([46]) See Ockham, *I Sent., dist*. 45, q. 1 C.

([47]) The most important studies here are Rodis-Lewis 1981; Marion 1996 : 183–219; Gasparri 2007a, 2007b. We are indebted to these.

([48]) Louis Le Valois (1639–1700); see Le Valois 1680: 243.

([49]) As Gasparri (2007b: xxiv) has noted.

([50]) *De civitate Dei*, CCI.8, as discussed in Rodis-Lewis 1982.

([51]) Recall that for the scholastics, the principle of contradiction limits the omnipotence of God: cf., e.g., Thomas Aquinas, *Summa theologiae*, Ia.2.3; Duns Scot, *Ordinatio* I, d. 44, q. unica, 7.; Ockham, *Quodlibet* VI, q. 6. Descartes alone maintains that nothing, absolutely nothing, is impossible for God.

([52]) For Spinoza, *Ethics* I, prop. 33, schol. 2, with transparent allusions; for Malebranche, the Sixth Replies, §§6 and 8, are often cited in Eclaircissements VIII and X, in Malebranche 1958–78: III.85–7, 136; for Leibniz, see the January 1680 letter to Philipp, Leibniz 1875–90: IV.285.

([53]) *Metaphysical Thoughts*, II.9: *Quod si Deum aliam fecisset rerum naturam, etiam nobis alium debuisset dare intellectum* (Spinoza 1925: I.267).

([54]) *Metaphysical Thoughts* II.9, Spinoza 1925: I.266/Spinoza 1985: 331–2; *Ethics* I, prop. 33, schol. 2, Spinoza 1925: II.74–6/Spinoza 1985: 436–9.

([55]) Cf. *Ethics* II, prop. 11, Spinoza 1925: II.94/Spinoza 1985: 456; and, on adequate ideas, III, prop. 3, Spinoza 1925: II.144–5/Spinoza 1985: 497–8.

([56]) On the interpretation of this sentence, see the debate between Robinet (1965: 231–9) and Rodis-Lewis (Malebranche 1958–78: II.149). The sentence itself was modified in 1678.

([57]) *Critique of the Search after Truth* (Foucher 1969: 25–32).

([58]) "Préface against Foucher" (1675), Malebranche 1958–78: II 480–99, here 488–9.

([59]) Recall that in 1678, the General Congregation of the Oratory decides that the "opinions of Descartes in philosophy" are suspect; see Robinet 1965: 237.

([60]) Elucidation X, Malebranche 1958–78: III.133; *Dialogues on Metaphysics and on Religion*, IX.13, Malebranche 1958–78: XII.220; Elucidation VIII, Malebranche 1958–78: III. 85; Response to Régis, II.23, Malebranche 1958–78: XVIIA.308.

([61]) "Préface against Foucher", Malebranche 1958–78: II.490: *je ne crains point de dire, que Dieu ne peut pas faire que les contradictoires soient vraies ou fausses dans le même temps*.

([62]) To Arnauld, July 14, 1686, in Leibniz 1875–90: II.49; *Discourse on Metaphysics*, §2, IV. 427; *Theodicy*, §185, VI.227.

([63]) See Le Grand 1671, 1672; Gasparri 2007b: 139–41.

([64]) See Rodis-Lewis's introduction to Desgabets 1983, and especially Schmaltz 2002: 2.

([65]) "Supplement to the Philosophy of M. Descartes", in Desgabets 1983: 209 and 232.

([66]) Ndiaye 1991: 321–32 and 1996: 64–75; Moreau 1999: 173–7; and previously Laporte 1923: 335.

([67]) See *Pensées*, in Pascal 1963: 558.

([68]) See Marion 1986: 318–20; Carraud 1990: 362–5.

([69]) *Contra* Alquié 2000.

([70]) See Arbib 2017.

Dan Arbib

École Normale Supérieure (Paris)

Cartesianism and Eucharistic Physics

Jean-Robert Armogathe

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Edited by Steven Nadler, Tad M. Schmaltz, and Delphine Antoine-Mahut

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Abstract and Keywords

The Catholic doctrine of the Eucharist (the transformation of the whole substance of the bread in the body of Christ) was a stumbling block for Cartesian physics, which denied any accidents. Descartes worried about this and proposed several solutions in order to solve the difficulty and assert his orthodoxy. Despite this, the problem stirred up fierce discussions among his followers and brought him official condemnation from the Catholic church. This chapter shows how this debate is not only a theological debate concerning transubstantiation—Descartes has had to bring a theological discussion into philosophy. The true issue in this discussion is not the explanation of the dogma, but the definition of the body.

Keywords: Eucharist, physics, transubstantiation, Desgabets, theology

(p. 547) 1. At the Heart of the Religious Controversies

THE physical aspects of the Eucharist, prominent in medieval theological discussions, are present again in later debates between Catholics and Protestants. Though all Christians agree on the importance of a sacrament that Christ founded on the night of Holy Thursday, they differ profoundly on its precise nature. Catholics hold, according to the terms of the Council of Trent (Thirteenth session, 1551), that in the Eucharist the body and blood of Christ are present with his soul and divinity “truly, really, and substantially” (*vere, realiter et substantialiter*) by means of a conversion aptly called *transubstantiation*. The Evangelicals (Lutherans) profess for their part that “the true body and true blood of Christ are really present, distributed and received in the Last Supper, under the species of the bread and wine” (*Confession of Augsburg*, 1530), but in distinction from Catholics, they think that the substance of the species remains together with the body of Christ. While recognizing that in the sacrament “Christ nourishes and enlivens, by a secret and incomprehensible action of his Spirit, of the substance of his body and of his blood”,

members of the Reformed Church (Calvinists) affirm nonetheless “that this is done spiritually, not to substitute for the effect of the Last Supper imagination or thought, but because this mystery exceeds by its greatness our human capacity, and the whole order of nature” (*Confession de foi de La Rochelle*, 1559). Finally, for the Sacramentarians (Karlstadt, Zwingli, Œcolampade), the presence of Christ is only spiritual. For Luther, the bread and wine are instruments of the presence of Christ, whereas for Zwingli, they are *signs* of his presence. The adversaries shared a common vocabulary, that of scholastic philosophy, and the controversy concerned a common definition of matter, form, substance, and accidents. For the Catholic theologians, the substance of the species is replaced (p. 548) by that of the body of Christ, the accidents (appearances) remaining the same; the Protestants reject these accidents deprived of support (of a *subject*).

The radical change in the definition of substance and the identification of bodily substance with extension, which Descartes proposed, reactivated the theological debate. Thus a Calvinist theologian, an exact contemporary of Descartes, Théophile Brachet de La Milletière (1596–1665), concerned to “establish the peace in Christendom”, proposed a *via media* between Catholics and Protestants: “that the principal cause of corporeal communion by which our body is joined to the Body and Blood of Christ is the communion by which our souls communicate with the Mind of Christ” (La Milletière 1635: 36).[1] When his *Way of Christian Peace* was condemned by the Sorbonne in 1637, he converted to Catholicism in March 1645 (which did not prevent the condemnation in 1644 of his work). This context allows us to understand how the publication of Descartes’s *Meditations* prompted a reaction among the theologians.

2. The Terms of the Problem

Clearly aware of the theological issues raised by his new philosophy, Descartes wrote to Mersenne in a letter of November 25, 1630: “I think I will send you this discourse on light […] before sending you the rest of the Dioptrics” (AT I.179/CSMK 28). The reason for this delay? Descartes explained to his correspondent that he must discuss colors and “consequently” a particular problem: the permanence of whiteness in the consecrated host. Either the effect of color is an accident and persists without substance (or resides in quantity, which is the traditional scholastic view), or rather, the other scholastic explanation that Thomas Aquinas rejected (but that will be revived by Maignan and Rohault), God causes in the eye of the perceiver a colored sensation, independently of the reality of the situation. Cartesian optics could not escape this dilemma, except by incorporating a new theory of light, “and consequently [by being] obliged to explain how the whiteness of the bread remains in the Holy Sacrament” (AT I.179/CSMK 28). The text of the *Essays* is itself incomplete given that no references to the Eucharistic issues announced to Mersenne are to be found in this text. This silence lasted from 1630 until 1637; during this period, such issues disappeared from Descartes’s correspondence. We have to wait until October 1637, after the publication of the *Discourse* and the *Essays*, to find in the correspondence a new letter that mentions Descartes’s Eucharistic concerns.

We know that during this time Descartes undertook a campaign to solicit the opinions and objections as well as the approval of his former Jesuit teachers. He waited for them, in 1637, to be convinced of the interest of his doctrine and—why not?—to teach it in their colleges. He also insisted, in a letter to a Jesuit [Fr. Noel?] of October 1637 (AT I.454/CSMK 74), and some months later, in a letter to Father Vatier (AT I.559/CSMK 85), (p. 549) on the apologetic value of his philosophy, and specifically of his physics. Of utmost importance is the necessity of an explanation of the Eucharist, which Descartes proposed to Vatier, a Jesuit who was open to new principles. Descartes, it is true, immediately withdraws what he promises:

> But I see no signs that the conditions which could oblige me to do so [i.e. to offer an account of transubstantiation] will be fulfilled, at least for a long time; I do not see any appearance that conditions that can oblige me be fulfilled, at least for a long time; and so I content myself with doing my duty and submit myself for the rest to the Providence which rules the world. (AT I.564/CSMK 88)

He writes to Mersenne at the beginning of 1641, “There is not, it seems to me, any difficulty in accommodating theology by my way of philosophizing” (AT I.295–6): in his own words, this is what he had already written to Fournet in October 1637. Descartes wrote that theology remained unaffected by his philosophy except on one point, precisely that which interests us: “I do not see anything in it [i.e. theology] that needs changing except in the case of transubstantiation, which is very clear and easy to explain on my principles” (AT III.296/CSMK 172). Even though preoccupied by ordering his *Principles* as a formal textbook, Descartes does not neglect Eucharistic problems: “I shall have to explain [transubstantiation] in my Physics”, he writes to Mersenne on January 28, 1641, “along with the first chapter of Genesis; I propose to send my explanation to the Sorbonne to be examined before it is printed” (AT III.296/CSMK 172). Descartes further asserts, in the letter to Mersenne of March 31, 1641, that “it is impossible to give a satisfactory explanation of the doctrine [of the Eucharist] by means of the traditional philosophy” (AT III.349/CSMK 177).

3. The First Cartesian Solution: Replies to Objections to the *Meditations*

In 1641, Descartes was compelled to produce what he promised the Jesuits in 1638. His discussion of the Fourth Objections to the *Meditations* and his response to the Sixth Objections obliged him to trespass on the domain of theology. Descartes knew well the importance of the question, but he had the opportunity to consider how much he needed to provide an explanation of the mystery according to the principles of his philosophy.

In his Fourth Objections, Arnauld noted, among the objections “which could be raised by theologians” (AT VII.214–18/CSM II.151–3), the difficulties created by Cartesian physics, which could be interpreted as incompatible with Catholic teaching on the Eucharist and the mode of Christ’s presence in this sacrament. Since Descartes acknowledged in the

First Replies that the distinction between substance and accidents was just “formal” (AT VII.120), how could he assert that the substance of Christ’s body could (p. 550) really be present under the species of bread, the autonomous existence of which he flatly denied? Sending Mersenne his responses, in March 18, 1641, Descartes still holds back on the question: “I am not sent you yet the last sheet of my Reply to M. Arnauld, where I give an explanation of transubstantiation according to my principles” (AT III.340/CSMK 177). The reason for the delay is rather surprising, or at least novel: “because I want first to read the Councils on this topic, and I have not yet been able to obtain them”. Though he affirmed in 1637 that transubstantiation “is extremely clear and easy by [his] principles” (AT III.296/CSMK 172), Descartes now seems to be seized by a doubt: he has to read the teaching of the Church (probably here Trent and Constance) before asserting the orthodoxy of his explanation. Two weeks later, this reading is complete (Descartes could have read only the Tridentine decrees and their canons), and he sends Mersenne the end of his response to Arnauld (AT III.349/CSMK 177).[2] He is, this time, very sure on this point: he shows the same confidence as in the texts of 1637 and 1638 that *only* his philosophy conforms to the Catholic faith. Not only did the *orthodoxy* of his principles emerge from this reading infinitely more secure, but also the *error* of classical solutions was more obvious and certain to him. The defiant appearance of this triumphant letter made Clerselier retreat by omitting it from his collection of Descartes’s correspondence, nor does it appear in the various collections of Cartesian Eucharistic texts.

But Arnauld was not the only one to interrogate Descartes on the mode of the presence of Christ in the Eucharist. As we have seen, Mersenne was interested in this issue, and the Sixth Objections, which is presented as coming from “various theologians and philosophers”, reopens it again, expressing uncertainty on the point:

> We do not grasp your assertion that there are no real accidents, belonging to whatever body or substance, accidents which could by divine power be separated from their subject, and which do really exist in the sacrament of the Altar. (AT VII. 417/CSM II.281)

Arnauld had questioned the Cartesian rejection of accidents distinct from their substance. The Sixth Objectors went further, and suggested a second miracle: God may have brought it about that the accidents remain, independently of any substance. The response of Descartes proves the recent readings he had made on the subject. He says to Mersenne, in effect in a disdainful tone:

> I am surprised at the objections of your doctors, namely that we have no certainty, according to my philosophy, that the priest is holding the host at the altar, or that he has water to baptize, etc. Even among scholastic philosophers, whoever said that there was any more than moral certainty of such things? Theologians say that it is a matter of faith to believe that the body of Christ is present in the Eucharist, but they do not say that it is a matter of faith to believe that it is in a particular host. For that you have to suppose, *as a matter of ordinary human credence, that the priest had the intention to consecrate, and that he pronounced the words, and*

> *is duly ordained, and* (p. 551) *other such things that are not matters of faith* [*ex fide humana, quod sacerdos habuerit voluntatem consecrandi, et quod verba pronunciavit, et sit rite ordinatus et talia quae nullo modo sunt de fide*]. (AT III.359/ CSMK 179)

However, Descartes did not answer the question: apart from the distinction between substance and accidents, the scruples of the Objectors concerned what Descartes meant by *surface* (*superficies*). Mersenne had read, and understood, the *Meditations*: Descartes had defined body, in the Second Meditation, in relation to surface (see AT VII.26/CSM II. 27). All sensations derive from the superficies of bodies. The Objectors referred to his answer to the Fourth Objections—which Mersenne, in fact, had in hand—and seemed to be ready to admit that the species correspond to a *surface*, understood, however, otherwise than Descartes has. They were concerned with what kind of reality Descartes would grant to the surface.

In the Dioptrics, Descartes explains that he understands by *surface* neither the air nor the glass, but *what separates the air from the glass* (AT VI.102/CSM I.162). In a letter to Mersenne from June 23, 1641, Descartes recalls his definition; it is, of course, of great relevance for the Eucharist:

> As for the surface that I have said is a part neither of the bread nor of the air that surrounds it,[3] it differs in no way either from the *locus aristotelicus* of the schools,[4] or from the surfaces that geometers consider,[5] except in the imagination of those who do not conceive them as they must, and suppose that the *surface of the ambient body* [*superficies corporis ambientis*] is a part of the circumscribed body. In this they are mistaken. And for this reason, in the Dioptrics I have spoken neither of the surface of the glass, nor of the air, but of that which separates the air from the glass. (AT III.387)[6]

The Sixth Objectors had pinned the relevant difficulty: if the surface is not objective, how could the Eucharistic accidents subsist (AT VII.417/CSM II.281)? The refusal to take the surface for a part of the substance, that is to say, for a substance itself (at least *in potentia*) precludes the affirmation of the local permanence of real accidents.

The prudence of Mersenne prevailed over the enthusiasm of Descartes: the first edition of the *Meditations* (Paris: Soly, 1641) did not publish the full answer to Arnauld's Objections. Descartes's text stopped at the top of page 354:

> [353] for never and nowhere, to my knowledge, the Church taught that the species of bread and wine remaining in the sacrament of the Eucharist re some real accidents, [354] which, once the substance to which they inhered disappears, subsist miraculously by themselves.

(p. 552) This was followed by these lines, probably due to Mersenne:

> I say nothing of the other things that could be required here, until at length, in the Summa Philosophiae, which I am preparing, I will demonstrate all those things from which the solutions will be deduced, which will satisfactorily address particular objections in this matter.

The Fourth Replies ended here: page 355 began with the Fifth Objections. This conclusion cleverly permitted the coupling of an announcement of a "Summa Philosophiæ" (evidently, the *Principles*)—thus drawing the curiosity of the public—with the retraction of the end of the reply. This Summa of Philosophy corresponds to the Physics announced in the Sixth Replies, inspired by Mersenne.

When Descartes published a second edition of his *Meditations* in Amsterdam (1642), he was not afraid anymore of attacks on his Catholic orthodoxy in the Low Countries, or of censorship by the Sorbonne doctors. Moreover, as shown by his letter to Mersenne on December 22, 1641 (AT III.470), he felt more confident of the acceptability of his views to his Jesuit teachers.

In November 1642, Descartes circulated a fragment of a letter from Vatier. The text is probably authentic, but it would be good to know the context of the claim of the Jesuit: "I cannot help confessing to you that, following your principles, you explain very clearly the mystery of the Holy Sacrament of the Altar, without any accidental entities" (AT III.591).[7] Does this signify a substantial agreement? Obviously Vatier recognized the clarity of the Cartesian explanation, and he employed, moreover, the same verb, *explain* (*expliquer*), already used by Descartes in 1630 and 1641 on the same subject. But the turn of Vatier is ambiguous: is this clarity correct and in line with orthodoxy? He says nothing about this, failing to pronounce on the doctrinal correctness of the proposed explanation.

In fact, during 1642, when Descartes, on his guard but sure of himself as he waits for the reaction of the Jesuits, there are the first offensives on transubstantiation. In February the Minim Jean Durelle wrote to his fellow monk and friend Mersenne, pointing out a text that could worry Descartes: article 2 of the condemnation of Wycliffe by the Council of Constance (1418). Durelle refers to his sources, Bartholomeo Carranza and Scoto. He knew, moreover, that Descartes cited the Council of Trent, and suggested that "perhaps he [Descartes] will explain it as he does the Council of Trent, on page 352" (Mersenne 1932–88: XI.45–52).

Mersenne must have transmitted the content of the letter from Durelle to Descartes, supplying him with the text of the condemnation of Wycliffe. He must also have drawn the attention of Descartes to the text of Constance and asked him for public testimony of his faithfulness to the Catholic Church. Descartes responds to him:

> As to the public testimony that I am Roman Catholic, it seems to me that I have already done this several times: as in dedicating my *Meditations* to the doctors of the (p. 553) Sorbonne, in explaining how the species remain without the substance of the bread in the Eucharist, and elsewhere. (AT III.143/CSMK 151)

There is however another testimony to the effort Descartes made that year to win over the Jesuits by way of his solution. The witness cannot be suspected of a pro-Cartesian bias: he is Descartes's Calvinist critic Gisbert Voet (1589–1676), who published, toward the end of 1642 (dated 1643), his *Cartesian Philosophy or the Admirable Method of New Philosophy of René Descartes* (Voet 1643). Among other *phantasmata*, he pointed to Descartes's theory of transubstantiation: according to him, Descartes, by claiming that he was a good Roman Catholic, tried to regain the protection of the Jesuits.

4. The Letters to Mesland

Suddenly Descartes's relations to the Jesuits took an unexpected turn, in the person of Father Mesland (1615–72), who wrote a *Short Treatise* on the *Meditations* for use in Jesuit colleges. The letters that Descartes sent to Mesland are difficult to date. It seems legitimate to place them sometime during the period 1644–6. Mesland's interest in the Eucharistic solutions (a legitimate interest on the part of a religious, called to teach philosophy in colleges and to hold disputations) coincided with a key moment for the diffusion of Cartesianism: the imminent publication of the French translation of the *Meditations*, and especially of the Replies to Objections. Though Clerselier translated the Fourth and Sixth Replies, and was to deliver to the "*gens d'esprit*" the Cartesian solution to the Eucharistic question, he was moved to ask Descartes for additional explanations. Mesland also was worried about passing Descartes's doctrine along to his colleagues, and asked him for clarifications and further developments.

Though Clerselier prudently refrained from publishing the Mesland letters, he nevertheless distributed some copies. The letters were published only in 1811, in the *Thoughts of Descartes on Religions and Morals* (Descartes 1811), then in the *History of Cartesian Philosophy* of Francisque Bouillier (Bouillier 1868: I.453–9). The first letter by Descartes is dated May 2, 1644, from Leyden (AT IV.111/CSMK 231). In the letters themselves, Descartes responded to the request from Mesland for several clarifications on the subject of the Eucharist and other questions. As in the case of the theologians of the Sixth Objections, Mesland must have asked Descartes about the difference between a body and a surface, because Descartes responded that the surface is distinct from body. He had responded to Mersenne that "the surface, being only a mode, cannot be a part of a body"; he repeated here to Mesland: "I distinguish body from surfaces […] as a substance from its modes" (AT IV.119/CSMK 235). The surface, which belongs to the substance of the bread as well as of the surrounding air, remains in the Holy Sacrament, as a mode of the body of Christ. In other words, Descartes offered a Eucharistic model that allowed for the persistence of *surfaces*, a model which he developed in later correspondence with Mesland.

(p. 554) The second question Mesland must have sent concerned the extension of the body of Jesus Christ: a more technical question, but one that was very important in scholastic discussions. Once bodily substance is identified with extension, it is necessary to say that the body of Christ is extended in the Holy Sacrament, which poses the problem of the

mode of its (local) presence. Descartes recoiled from offering a solution to this theological problem: he referred his correspondent to the Councils and to his replies to the Fourth Objections. He also admitted, on this occasion, that on the one hand his appeal to the Council was an evasion, and that on the other, he abstained *as much as possible* from theological questions. Yet his subsequent replies to Mesland show that he found it to be impossible to leave questions concerning transubstantiation without response. Descartes obviously felt confident in his relation to Mesland, who could be influential enough to introduce his doctrine into Jesuit teaching. In spite of his reserve, Descartes therefore engaged in offering an explanation of the mystery in order to bring theological truths in line with the compelling clarity of evidence, thereby triumphing over the enemies of religion, heretics and libertines.

Initially Descartes offered Mesland some clarifications of his Fourth Replies. Repeating here what he said in the Sixth Replies, he claimed that by *surface* he understood not a substance, but a mode that was exactly the *terminus* of the little parts of bodies. This surface is what allows for the Loire to be called a river that flows to Orléans, and gives to it a numerical identity. It is this surface that takes over the role of individuation played by Thomistic “dimensive quantity” (*quantitas dimensiva*) (AT IV.164/CSMK 242).

With respect to the mode of the presence of Christ, on which Mesland must also have consulted him, Descartes was more reserved: he is aware of the novelty of his solution and is unsure of its orthodoxy. He seemed ready to play the part of the theologian, but he feared that “anything [he] could write would be less well taken from [him] than from another” (AT IV.165/CSMK 242). This reserve did not prevent him from revealing his idea to Mesland, though with the request to keep it anonymous.

Descartes wondered, at the start, about the sense of the term *body* (*corps*). We have seen that in his explanations, he usually spoke of the substitution for the substance of the bread “of some other substance”. In this case, however, this “some other substance” was not *any other* substance, but a human body, united with the divinity of Jesus Christ in two natures and a single person. The substitution of the substance (in a body) sufficed for the model that Descartes proposed in the first place: a body was defined in the Second Meditation as “whatever has a determinable shape and a definable location and can occupy a space in such a way as to exclude any other body” (AT VII.26/CSM II.27). However, this definition (which supposes the impenetrability of bodies) does not explain the mode of presence of Christ in the Eucharist. The substance of the bread is converted into a human body, that is to say, a composite of matter and soul. But the *numerical* identity (*de numero*) that is generally procured by the surface of a body is, in human bodies, the product of the soul. The examples of growth and mutilation make clear that one can speak of the same body given any change in the matter of the human body as long as the same soul is present. Descartes is only returning to the scholastic axiom: *The living body does not remain the same in number* (*Vivens non remanet idem numero*). Matter does not (p. 555) assure the identity *numero* of the body; this identity is assured by the soul. Moreover, a natural transubstantiation produces the assimilation of nourishment: the bread and wine that I consume are transformed into my blood and flesh. And this natural tran-

substantiation gives us a model of supernatural transubstantiation. Descartes's biographer Baillet had understood well an essential element of Cartesian physics when he noted that one must "explain the miraculous transubstantiation that takes place in the Holy Sacrament by the natural transubstantiation that takes place in the nourishment of our body without a miracle" (Baillet 1691: I.519).

The rest of the letter addressed another technical problem: *the organization of the body of Christ* in the Sacrament. Descartes considered it briefly (had he understood its importance?), repeating his definition of the human body as matter informed by a soul and at the same time claiming the conformity of this definition to common use. The *body* of Christ is in the host, yet it cannot be said that his arms or legs are there (AT IV.165/CSMK 242). In his answer, Descartes escaped the relevance of this question: what is a body deprived of its organs and limbs? How can one speak of corporeal informing if no specific form can situate the organs and provide an organized body for the soul and divinity of Christ? As Father Fabri (1607–88) later said, "If God united the human soul to a rock, he would not make of it a human body: the entity of the rock would remain" (Fabri n.d.: 387). How is Christ present in each part of the host? Descartes had already said that the soul of Christ was united to the entire host, when it is whole, and to each part when it is broken. He recalled here that the soul individualizes the body even if this body is mutilated.

Descartes attributed the same extension and quantity to the body of Christ that the bread has. But then he struck out those lines in his own copy, and maybe did not communicate it to Mesland (AT IV.169). In deducing from his principles, Descartes found that by identifying bodily substance and extension, he could attribute to the substance of the body of Christ only the extension occupied previously by the substance of the bread—that is, the extension terminated by the surface of the bread. This solution contradicted article 4 of question 76 of the *Summa Theologiae* of Thomas Aquinas (Ia pars), which rejects the principle of a presence by the mode of dimension. Descartes was certainly aware of the problem, but did not offer his correspondent a response to it. He ended by asking Mesland's opinion.

Mesland must not have considered this explanation to be better, since Descartes soon wrote him again that this explanation was in no way necessary for his principles. Mesland must have surely objected to him that the soul of Christ is present in the sacrament only by a real concomitance (*Summa Theologiae* 76.1). The Cartesian solution implies a double operation: the conversion of the substance of the bread into the substance of the body of Christ and the union of the soul of Christ with this substance, a double operation that, for Descartes, is indicated in the words of Christ, *this is my body* (*hoc est corpus meum*).

By *body*, Descartes could not mean anything other than the union of a part of matter with the soul of Christ. But it seems that this does not exactly respond to an objection that Mesland could have put to him. In particular, Mesland could have followed in his letter the discussion about Eucharist in the work of Thomas Aquinas, which addressed (p. 556) the disputed point of the body of the dead Christ, the consecration *mortuo Christo*. What might have happened if the Apostles had celebrated Mass on Holy Saturday, between the

death and the resurrection? This question succeeds the question of substantial conversion in Thomas, who in line with his account of this conversion, thinks that the inanimate body of Christ would have been found under the Eucharistic species, a solution of which Descartes seems not to be unaware (after all, he had read Aquinas). Descartes envisions the hypothesis: “even if the Church had not determined that the soul of Jesus Christ was not united to his body in the host which was consecrated at the time of his death …” (AT IV.347/CSMK 279). His response remains truly coherent: matter would have been as much the body of Christ as matter deposited in the tomb could be. The response resolves the difficulty only by postponing it. In terms of real concomitance, Descartes stays in line with the classical distinction: the matter of the wine is the body of Christ, so long as the blood united to the human soul is a human body, by concomitance, with flesh. This is no particular problem for Cartesianism.

5. Final Clarifications

Descartes never provided a complete explanation of the Eucharist; he just touched lightly upon the main difficulties, but did not explore the intricate series of questions raised by this sacrament in Catholic theology. But at least he provided additional details in three other letters, of which two are without date or destination.

In a letter to Clerselier, from March 2, 1646, Descartes addresses the Eucharistic question, in response to a difficulty raised by his friend (AT IV.374/CSMK 284). He responds briefly, completing, so to speak, the Fourth Replies that Clerselier was in the process of translating. He also signals the difference between a transubstantiation of a body such as gold and bread and the conversion of bread to the body of Christ. But he is content to affirm the contribution of Christ in this conversion, by informing matter, without drawing the consequences of this contribution for the manner in which Christ is present in the sacrament.

The second letter comes, as in the case of the other two, in manuscript 366 of the Public Library at Chartres, which includes a note by Clerselier: “I know neither where nor to whom it has been written”. Responding to an objection of his unknown correspondent, Descartes begins by stating that there would be a similar objection in the scholastic tradition, which was formulated as follows: “when one corporeal substance is changed into another and all the accidents of the former remain, what is it that has changed?” (AT IV.375/CSMK 285). The difficulty concerns the term that Descartes uses sometimes to designate the consecrated species, as in the copy of the last letter to Mesland collated by Clerselier, which offers the following addition: “and it also suffices to say that matter [of this host or] of bread would have had the dispositions of the body without the blood” (AT IV.347).

Descartes believed it useful to respond by emphasizing the two issues concerning transubstantiation: the persistence of accidents and the presence of Christ, the second of (p. 557) which concerns the proposed problem. He does not claim originality for the first. He does not hide that he has a new possible explanation for the second, but notes to his correspondent the desire to keep his silence, “because in these matters the most common

opinions are the best" (AT IV.375/CSMK 284). His point of view being clarified, he replies in traditional terms: nothing changed that fell under the senses, and thus it was legitimate to call it bread and wine. Transubstantiation totally escapes sense experience, which allows one to continue to call the same appearances by the same name, since the name never designates and identifies anything other than appearances.

The last text on the Eucharist is a fragment of a letter, with neither date nor destination, reproduced by Clerselier in a letter of May 22, 1654 to Viogué, along with other Eucharistic remarks (AT IV.741–4). This text is important because in it Descartes recalls his distinction between primary qualities, which are in the object, and secondary qualities, which are not, "but which are only sensations in us, as are all the sensations that we have of colors, sounds, odors, and all the other proper sensibles". The persistence of secondary qualities is not surprising, since they have never been in the bread we (sense or) experience, but only in us. As for the others, they were never anything real other than bread, but only its accidents. The body of Jesus Christ that takes the place of the bread (that is to say the same intermediate surfaces, in number, as the bread) produces accidents similar to the bread, and the sensations are thus the same. This point about vision is applied here, for a unique example, to the consecrated species; but we see that it is not a privileged application of the general principles of Cartesian physics.

The last text on transubstantiation is remarkable in what it hides and masks: it reflects the desire for silence that so well suited a subject that Descartes appears to finally recognize as particularly dangerous. Arnauld revived this subject in an anonymous Latin letter, which can be dated around mid-July 1648 (AT V.190): the theologian used the pretext of remarks in articles 9, 10, and 11 of the second part of the *Principles* to ask Descartes about his refusal to distinguish the *extended thing* from *local extension*. Descartes's use of the expression 'local extension' (*localis extensio*) could not escape the notice of a theologian. In fact, this expression is found in the *Summa Theologiae* of Thomas, as the object of an article. Arnauld asks Descartes how he explained that the body of Christ can be present on the altar without any local extension, an absence that implies, in the *Principles*, the absence of the object. Arnauld does not fail to recall that Descartes had properly explained in the Fourth Replies how the lack of distinction between substance and its accidents could be compatible with the doctrine of the Eucharist. He thus invites Descartes to complete the clarification of his theory on the question of local extension in the sacrament. The difficulty consisted in reconciling Cartesian physics with the solution of Thomas: the body of Christ is not in the Sacrament as in a *place*, but in the mode of substance, that is to say the manner in which substance is contained by dimensions. By reason of its dimensions, his body is there locally; but the substance of this body is connected to a place by dimensions that are foreign to it, which are those of the bread. It thus cannot be localized.

Descartes could have replied to the question by communicating to its author what he had written to Mesland concerning the notion of surface and the definition of dimensions.

(p. 558) However, he prefers silence, according to the line that he had set. In his response, he invokes the authority of the Council of Trent to justify his evasion:

> Since the Council of Trent itself was unwilling to explain how the body of Christ is in the Eucharist, and wrote that it is there is a manner of existing *that we can hardly express in words*, I should fear the accusation of rashness if I dared to come to any conclusions on the matter. (AT V.194/CSMK 355)

The evasion is even more obvious when he adds: “I would prefer to communicate by word of mouth rather than in writing.” Descartes has not renounced his explanation, but he has judged it more prudent for now to be silent on this matter.

6. Cartesians I: Clerselier

We do not know whether Descartes knew of the first attack in print on his explanation of the Eucharist: it is found in a large book by the English Jesuit Thomas Compton Carleton, *Universal Philosophy* (Compton Carleton 1649: 246). In Disputation XII, he discusses the existence of substantial forms, reporting from the start the Cartesian text of the Fourth Replies.

After Descartes’s death, Clerselier exerted himself to draw an orthodox (and pious) image of the philosopher. He thought that a main asset could be his explanation of the Eucharist, and thus circulated the letters to Mesland. In 1654, he owed a response to the objections of Viogué, an Augustinian religious who assisted Descartes during his last moments in Sweden and who had posed the following questions to Clerselier: 1) How can transubstantiation be explained if the essence of bodies consists in their extension in length, width, and breadth? 2) If there are no real accidents, how can one explain the presence of Christ in the Sacrament? Clerselier responds with numerous letters to Viogué (Agostini 2009).

An Auvergne physician, by the name of Pastel, resumed the debate, having learned of Clerselier’s replies to Viogué. Clerselier, pressed for time, communicated Pastel’s objections to “a very learned Benedictine”, namely dom Robert Desgabets (1610–78), who responded to them (Agostini 2009). It is at this moment that Clerselier must have sent Desgabets the content of one or two letters to Mesland, which Clerselier was at the time distributing rather widely. This was the time of Clerselier’s correspondence with his friend Denis, of Tours, who advised him to distinguish between natural events, which Cartesian physics explains the best, and miraculous events, which escape explanation by physics. This dichotomy could not convince Clerselier: Cartesianism was forming, under his influence, a school equipped with a system able to provide a total explanation of the world. In 1659, Clerselier corresponds with a Jesuit, Bertet,[8] who was informed (p. 559) of the letters of Clerselier (to Viogué?) by “M. de Pardessus, gentleman of the duc de Lesdiguieres”, the governor of Provence. Bertet protests his good faith, because Clerselier, put on the defensive by a letter from Vinot, remained guarded: Bertet informs him of his desire to spread Cartesianism among the Jesuits. The confidence placed by Clerselier in Bertet

ended rather badly and led to the condemnation of Descartes through the mediation of Fabri. If one believes Arnauld and Vinot, Fabri intrigued to obtain, in 1663, the decree of the Congregation of the Index that placed the Latin and French works of Descartes on the *Index of Prohibited Books*, with the designation *until corrected* (*donec corrigantur*) (Armogathe and Carraud 2004). A theologian from Marseilles, Malaval, joined Fabri in his censure.

7. The Condemnations

The debates internal to the University of Louvain in 1662 triggered the procedure in Rome, when two censors for the Saint-Office were entrusted with the *Opera* of Descartes, submitting two long reports (Armogathe and Carraud 2004). One of the censors denounced the physical doctrine of the Eucharist, the negation of real accidents. After the condemnation of 1663, a new inquiry was opened in 1671–3 (Armogathe 2005). Fabri informed the secretary of the Roman Congregation of the Index that French theologians were following the doctrine of Descartes and teaching a new explanation of transubstantiation, assuming the persistence of the accidents of the bread without a subject. Finding in his files previous cases on the Eucharist, the secretary of the Holy Office compared the former “errors” with the ones highlighted by Fabri, and pointed to the *atomism* of Descartes. As surprising as it may seem, the assimilation of Cartesian physics to atomism was very old, and this assimilation led in 1671 to a European inquiry of the Holy Office, which brought about a circular letter from the Roman Inquisition in 1673 against atomism. This did not lead to new condemnations (it sufficed to confirm the 1663 decree), but it allowed the accusations against the new physics to shift from seeing it as a pedagogical threat to being a major theological heresy. This shift motivated the prohibition of Cartesian philosophy at the University of Angers in 1675, and at the University of Caen in 1677 (McLaughlin 1979; Ariew 2013).

8. Cartesians II: Desgabets

This Lorraine Benedictine, Robert Desgabets (1610–78), taught philosophy and ensured several changes in his order (Lemaire 1902; Armogathe 1977; Schmaltz 2002). For the most part, his writings remain unpublished, but he occupied a prominent place in the little Cartesian world of 1660–80. He is found in 1658 in the circle of Habert de Montmort. Familiar to Régis and to Clerselier, Desgabets remained, on his return to Lorraine, very (p. 560) close to the Cartesians—“les Caristes”—of Toulouse and Paris. He closely followed the works published by Port-Royal, toward which he leaned in his religious sentiments (Armogathe 1969).

From 1663, in a Latin writing that remained in manuscript, Desgabets explained the Cartesian model to his students (at the time when Rome had placed Descartes’s *Opera* on the *Index*). The (anonymous) publication of his *Considerations of the Present State of the Controversy …* (Desgabets 1671) made public his Eucharistic physics.[9] Appealing to the

Port-Royal Logic of Arnauld and Nicole, he accuses the scholastic explanation of sticking to the name of transubstantiation, but not to the reality. In order to save the real presence of Christ, he explains, it is necessary to maintain that the matter of the bread unites to the soul and divinity of Christ. Otherwise, and according to the principles of the new philosophy, after consecration there would only be bread pure and simple. This pamphlet unleashed a storm of discontent on its author, who was soon identified; it led to a rupture with Port-Royal, which disavowed him, and also a censure by his Order. Desgabets found in the company of another condemned person, the Cardinal de Retz (1613–79), a fruitful exchange, that of the philosophical "conferences of Commercy".[10] They discussed Descartes and his disciple *du jour*, Malebranche (1638–1715). Desgabets continued to write, but his manuscripts remained unpublished (as the great *Traité en forme de lettre touchant la Sainte Eucharistie*, written around 1673), his main philosophical texts only being published in 1984 (Desgabets 1984).

Contrary to Scotistic and Thomistic explanations, Desgabets, backed by various precursors, asserted that the Cartesian questioning of scholastic commonplaces is no innovation, but the mere renaissance of previous explanations, offering a most secure doctrine. He distinguished the s*ubstance* of the bread from what is *substantial* in it: the substance of the bread disappears in the Eucharist, but what is substantial (the "substantiality" of the bread) remains to *inform* the substance of the body of Christ (which Desgabets calls a *transsubsistentiation*). The soul of Christ is thus united to what is substantial in the bread. This union creates the substance of a human body; the divinity of Christ, by uniting with this body, permits the presence on the altar of a Christ numerically the same with the Christ who is in the heavens; it also permits the multiplication of the hosts and their fracture.

9. The Final Polemics

The Eucharistic question did not vanish rapidly: it remained very active over the course of several decades, through anonymous writings and refutations of Cartesian solutions (Jansen 1956; Armogathe 1998; Adam 2000). Without entering into the details of these controversies, which reached their paroxysm during 1670–80, it will suffice to mention the most important points from them.

(p. 561) Faithful disciple of Descartes (and son-in-law of Clerselier), Jacques Rohault (1618–72), taught in his *Treatise on Physics* (Rohault 1671a; Clair 1978) that "the forms of animated beings cannot, even by miracle, exist independently of matter". The relevance of the Eucharist is obvious, and his solution is presented in a typically Cartesian problematic. He appealed to the Minim Emmanuel Maignan (1601–76) as an authority on this question (Maignan 1672: II.58) and reasoned in Cartesian terms:

> when we say that the body of Christ is surrounded by the same surface as the bread was previously, we do not understand here anything other than that the

> body of Jesus Christ is terminated where the bread was terminated, or rather that the body of Jesus Christ is precisely where the bread was.
>
> (Rohault 1671b: 97)

Maignan revised his explanation between the two editions of his *Cursus philosophicus* (1653 and 1673). In the final edition, the Eucharistic presence is limited to current sense perceptions. His theses were central to violent polemics, initiated by Jean-Baptiste de La Grange (ca. 1641–post 1680) in his *Principles of Philosophy, against the New Philosophers* (La Grange 1675). La Grange's attack focuses almost exclusively on the denial of sensible qualities and its relation to Eucharistic explanation. Jean Saguens, a Minim monk, defends Maignan in *Philosophia Maignani scolastica* (1703), especially against the Dominican Nicolas Gennaro (*Adversus atomos redivivas …*; 1704) in his *Systema Maignani vindicatum* (1705).

The publication in 1680, by the Jesuit Le Valois (under the pseudonym of La Ville), of the *Sentiments of Descartes* (La Ville 1680) led Malebranche to advance his own physical explanation of the Eucharist, while Arnauld returned to the question the same year, writing against the *Treatise on the essence of body* of Jean Lemoyne (†1695). Arnauld claims that the author confounds extension and impenetrability: extension is the essence of matter, while impenetrability is only a property. Properties can be disjoined from the substance by God's power—and so the impenetrability of the bread can be canceled, while its extension remains (Arnauld 1999: 35).

As a reader of Arnauld's responses, Bossuet initially found the explanation satisfactory (*Examination of the new explanation of the mystery of the Eucharist*, written around 1674–5, the "new explanation" being the one by Desgabets (Bossuet 1900)). However, when Bossuet became aware of the Mesland letters in 1701 (though in the *Examen*, he alluded already to "some particular writing, where Descartes hazarded another opinion" (Bossuet 1900: 143)), he was upset and asked in a letter to Jean-Antoine Pastel (March 30, 1701) that they be kept secret: "they will never be accepted and will be found to be directly opposed to Catholic doctrine" (Bossuet 1920: 49).

While claiming that it is not possible to account rationally for the mystery, Bossuet nevertheless proposed his own solution, drawn from the distinction between act and essence: the body is extension in act, but extension does not constitute its essence. "While we may define a thing through its act, it does not mean that this act is identical with its essence" (Bossuet 1900: 155). So he supposed in the body "something more profound and more intimate", which cannot be reached by reason (Bossuet 1900: 150).

(p. 562) We should mention Pierre Cally (1630–1709), whose response to Le Valois makes it certain that he knew the Mesland letters (Vattier 1911–12). His *Durand commenté, ou l'accord avec la théologie* (Cally 1700) cites the work of the medieval theologian Durand de Saint-Pourçain, whose opinion on the Eucharist was invoked by the Cartesians.

It remains to recall that Eucharistic physics led Leibniz, in his correspondence with the Jesuit Barthélemy Des Bosses (1668–1738), to formulate from 1706 the hypothesis of a substantial link (*vinculum substantiale*) capable of uniting a plurality of monads into one single substance (Leibniz 2007). The existence of corporeal substances beyond monads allows for the explanation of transubstantiation: God can, at consecration, destroy the substantial links of bread and wine (which are thus conceived as corporeal substances) and substitute for them the substantial link of the corporeal substance of Christ.

Well into the *Siècle des lumières*, the philosophical debate kept on going: writing a lengthy treatise on physics (Ferrari 1746), the Franciscan (and Scotist) monk Giuseppe Antonio Ferrari (†1775) saw fit to discuss among the opinions of the *recentiores philosophi*, Descartes's Fourth Replies (Ferrari 1746: 196–8), while his fellow religious Fortunatus of Brescia (1701–54) three years later penned a detailed explanation in terms of Cartesian tradition (Fortunatus 1749).

10. Conclusion

As we can see, the case of the Eucharist is both complex and multiple. Across the questions proper to Catholic theology, numerous philosophical concepts are summoned: unity, plurality, identity, substance, accidents, extension, impenetrability, etc. This history shows at the same time the distancing from scholastic explanations, the concern to preserve the orthodoxy of Cartesianism, the embarrassment in the face of a double series of explanations (those of the Fourth Replies and those of the letters to Mesland). The debate thus is not only a theological debate concerning transubstantiation: a bit despite himself, Descartes has imported a theological discussion into philosophy. The true issue in this discussion is not the explanation of the dogma, but the definition of the body. The philosophical treatment of a theological issue opens new horizons: thus the effort of Bossuet to preserve Cartesianism by the distinction between act and essence calls to something "more profound, more intimate" in body that announces the view of Lelarge de Lignac and the *philosophes*, in the eighteenth century, which is a psychology of the self in a disjointed and reshaped Cartesianism.

References

Adam, Michel (2000), *L'eucharistie chez les penseurs français du dix-septième siècle*. Hildesheim: Olms.

Agostini, Siegrid (2009), *Claude Clerselier, editore e traduttore di René Descartes: le lettere del manoscritto 366 di Chartres*, Lecce: Conte Editore. Available at: **http://www.cartesius.net/doc/pubblicazioni/Tesi_S._Agostini_tomo_II.pdf** [accessed October 20, 2018].

(p. 563) Ariew, Roger (2013), "Censorship, Condemnations, and the Spread of Cartesianism", in Mihnea Dobre and Tammy Nyden (eds.), *Cartesian Empiricisms*. Berlin: Springer, 25–46.

Armogathe, Jean-Robert (1969), “Dom Desgabets et Port-Royal”, *Chroniques de Port-Royal* 17–18: 68–87.

Armogathe, Jean-Robert (1977), *Theologia Cartesiana: L’explication physique de l’Eucharistie chez Descartes et Dom Desgabets*. The Hague: Martinus Nijhoff.

Armogathe, Jean-Robert (1998), “*Hoc est corpus meum*. Le débat autour de l’explication cartésienne de la transsubstantiation eucharistique”, in Pierre Legendre (ed.), *Travaux du laboratoire européen pour l’étude de la filiation. 2: Du pouvoir de diviser les mots et les choses*. Brussells: van Balberghe and Gevaert, 99–110.

Armogathe, Jean-Robert (2005), “Cartesian physics and the Eucharist in the Documents of the Holy Office and the Roman Index (1671–6)”, in Tad M. Schmaltz (ed.), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*. London and New York: Routledge, 149–70.

Armogathe, Jean-Robert, and Vincent Carraud (2004), “The First Condemnation of Descartes’s *Oeuvres*: Some Unpublished Documents from the Vatican Archives”, *Oxford Studies in Early Modern Philosophy* 1: 67–110.

Arnauld, Antoine (1999), *Examen du Traité de l’essence des corps*, ed. Emmanuel Faye. Paris: Fayard.

Baillet, Adrien (1691), La Vie de Monsieur Des-Cartes. Paris: Daniel Horthemels.

Bossuet, Jacques-Bénigne (1900), “Examen d’une nouvelle explication de l’Eucharistie”, *Revue Bossuet* 1: 129–58.

Bossuet, Jacques-Bénigne (1920), *Correspondance*, vol. 13, ed. Charles Urbain and Eugene Levesque. Paris: Hachette.

Bouillier, Francisque (1868), *Histoire de la philosophie cartésienne*, 2 vols. Paris: Delagrave.

Cally, Pierre (1700), *Durand commenté, ou l’accord avec la théologie*. Cologne [Caen]: Marteau.

Clair, Pierre (1978), *Jacques Rohault (1618–1672): Bio-bibliographie avec l’édition critique des “Entretiens sur la philosophie”*. Paris: Editions du CNRS.

Compton Carleton, Thomas (1649), *Philosophia Universa*. Anvers: Meursius.

Delon, Jacques (1979), “Les conférences de Retz sur le cartésianisme”, *XVIIè Siècle* 124: 265–76.

Descartes, René (1811), *Pensées de Descartes sur la Religion et la Morale*, ed. J.-A. Emery. Paris: Le Clere.

[Desgabets, Robert] (1671), *Considérations sur l'état présent de la controverse touchant le Très Saint Sacrement de l'autel*. Hollande: à la Sphere.

Desgabets, Robert (1984), *Oeuvres philosophiques*, ed. Joseph Beaude and Geneviève Rodis-Lewis, 7 vols. Amsterdam: Quadratures.

Fabri, Honoré (n.d.), *Censura …* MS, French National Library fr. 13262.

Ferrari, Giuseppe Antonio (1746), *Philosophia peripatetica adversus veteres and recentiores praesertim philosophos* …, vol. 2: *Physica generalis*. Venice: Fentius.

Fortunatus of Brescia (1749), *De qualitatibus corporum sensibilibus* … Brescia: Rizzardi.

Jansen, F. (1956), "Eucharistiques (accidents)", in A. Vacant et al. (eds.), *Dictionnaire de théologie catholique*, vol 4. Paris: Letouzey and Ané, 422–1443.

La Grange, Jean-Baptiste de (1675), *Les principes de la philosophie contre les nouveaux philosophes, Descartes, Rohault, Regius, Gassendi, le P. Maignan, etc*. Paris: J. Couterot.

La Milletière, Théophile Brachet, sieur de (1635), *Discours des moyens d'establir une paix dans la chrestienté par la reunion de l'Eglise pretendue reformée à l'Eglise romaine …* Paris: Jean Martin.

La Ville, Louis (= Le Valois) (1680), *Sentiments de M. Des Cartes touchant l'essence et es propriétés des corps …* Paris: Michallet.

(p. 564) Leibniz, Gottfried Willhelm (2007), *The Leibniz–Des Bosses Correspondence*, ed. Brandon Look and Donald Rutherford. New Haven and London: Yale University Press.

Lemaire, Paul (1902), *Dom Robert Desgabets, son système, son influence et son école*. Paris: Alcan.

McLaughlin, Trevor (1979), "Censorship and Defenders of the Cartesian Faith in France (1640–1720)", *Journal of the History of Ideas* 40 (4): 563–81.

Maignan, E. (1672), *Sacra Philosophia*, vol. 2. Lyon: Grégoire.

Mersenne (1932–88), *Correspondance*, ed. P. Tannery, C. de Waard et alii, 17 vols. Paris: CNRS.

Rodis-Lewis, Geneviève (1981), "Les différentes éditions des discussions entre Desgabets et le cardinal de Retz", *Studia Cartesiana* 1: 155–64.

Rohault, Jacques (1671a), *Traité de physique*. Paris: Cusson.

Rohault, Jacques (1671b), *Entretiens sur la philosophie*. Paris: Le Petit.

Schmaltz, Tad M. (2002), *Radical Cartesianism: The French Reception of Descartes*. Cambridge: Cambridge University Press.

Sommervogel, Carlos (1896), *Bibliothèque de la Compagnie de Jésus*, vol. 7. Paris: A. Picard.

Van de Schoor, R. J. M. (1995), *The Irenical Theology of Théophile Brachet de La Milletière*. Leiden: Brill.

Vattier, G. (1911–12), “La doctrine cartésienne de l’eucharistie chez P. Cally”, *Annales de philosophie chrétienne* 13: 274–96 and 380–409.

Voetius, Gisbertus (1643), *Admiranda Methodus Novae Philosophiae Renati Des Cartes*. Utrecht: Johannes van Waesberge.

Notes:

([1]) On La Milletière, see van de Schoor 1995.

([2]) See also a letter to Huygens (July 29, 1641, AT III.772).

([3]) In the Fourth Replies, AT VII. 250–1/CSM II.174–5.

([4]) Aristotle, *Physics* IV, 209b.

([5]) See the Sixth Replies, AT VII.433/CSM II.292.

([6]) The reference here is to Dioptrics II, AT VI.102/CSM I.162.

([7]) This fragment is quoted by Descartes in a letter to Mersenne; but Baillet, Descartes’s biographer, seems to allude to this (lost) letter: as the rumor was circulating of a censure of Descartes, “Father Vatier, having heard of it, wrote to Monsieur Descartes immediately to warn him of such disparaging falsity” (Baillet 1691: II.160).

([8]) An unpublished treatise by Bertet on the Eucharist is mentioned in Sommervogel 1896: pt. I, 1374.

([9]) The only copy of this text is in the French National Library: D[l]. 30996.

([10]) On the conferences, see Delon 1979 and Rodis-Lewis 1981.

Jean-Robert Armogathe

École Pratique des Hautes Études—Sorbonne (Paris)

Cartesianism and Feminism

Marie-Fréderique Pellegrin

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Cartesianism constitutes a particular and crucial moment in the history of the relations between the aims of philosophy and feminist claims. This is explained by theoretical reasons (the new Cartesian science posits a human being that is fundamentally non-sexual and ungendered) and by practical reasons (the importance of the philosophical vocations for women and the feminist vocations for men that Cartesianism has permitted). Recent readings of Descartes (which see him either as a misogynist or as a philogynist) show that the theoretical connections between Cartesianism and feminism are strong: Cartesianism powerfully questions the relation of women to philosophy, both as subjects and as philosophical objects.

Keywords: feminism, philosophical canon, sexual and gendered differences, embryology, moral philosophy, Cartesian women (philosophers), Marie Astell, Elisabeth of Bohemia, Poulain de la Barre

> “Descartes writes, your sex is avenged”
>
> (Genlis 1784: iii)

IT is now well established that any serious study of Descartes’s posterity must include his prospective feminine and feminist receptions, which are of course partially but not totally conjoined. Current reflections on the deficiencies of the classical philosophical canon have much to gain from this. The inclusion of women and the thought of women in the canon is necessary. The two steps must be parallel: rethinking the canon assumes the inclusion in it of women philosophers; it also assumes paying attention to what philosophers already in this canon (that is to say, men) have to say about women. It is also necessary to highlight men who speak in other ways about women in the history of philosophy. We will see that the theoretical connections between Cartesianism and feminism are strong: Cartesianism powerfully questions the relation of women to philosophy, both as subjects and as philosophical objects. In this regard, Cartesianism plays a specific role in the history of philosophy and the history of feminism. There also is another concern, that

of allowing for the refinement of the possible definitions of both Cartesianism and feminism. Each category nourishes the other.[1]

(p. 566) To understand the relations between these two categories, we must of course start with Descartes himself, his relations with women, and especially his theses concerning women and/or the feminine. We must then consider his immediate reception in light of these issues, which leads us to distinguish among his emulators between Cartesian women and Cartesian philosophers. Finally, it is interesting to wonder precisely about the supposed feminism or anti-feminism of Cartesianism, in the modern as well as contemporary eras.

1. Descartes and Women

It is necessary to start with two parallel questions: what does Descartes say about women? And are there specific elements of Cartesianism that favor the (notably intellectual) emancipation of women?

The second question can be addressed by emphasizing two aspects of the diffusion of Cartesianism in the seventeenth century: its exoterism and its notoriety, both of which contribute to the establishment of a new public for philosophy. In addition to its traditional recipients, the literati, this philosophy attracts the curious, who do not necessarily belong to the intellectual milieu properly speaking. This exoterism is explained by the writing (or rapid translation) of the principal works of Descartes in French. It is revealed equally by the locations of the diffusion and discussion of Cartesianism, which not being principally universities but semi-public and mondain (conferences, salons), turn out to be mixed.[2] The inclusion of the female public in its discussion is a goal explicitly endorsed by Descartes from the publication of his first book. In fact, he presents the *Discourse on the Method* as a work that he “wished to be intelligible in part even to women, while providing matter for thought for the finest minds” (Descartes to Vatier, February 22, 1638, AT I. 560/CSMK 86). These specific modes of the diffusion of Cartesianism make it more accessible than other philosophies of this time to an extra-academic but cultivated public, of whom women constitute a non-negligible part.

The existence of a feminine reading of Descartes finds its origin in the philosophical practice of the author. Descartes engages in philosophical dialogue with women and publicly valorizes their intellectual capacities, as attested by the preface dedicated to Elisabeth of Bohemia at the start of the *Principles of Philosophy*. She personifies the Cartesian (p. 567) reader in her perfect state, as their highly philosophical correspondence showed. The decision to join Christina’s court in Sweden to introduce her to the principles of his thought is another proof of this. Throughout his philosophical life, Descartes maintains intellectual relations with women: he tries to turn Anna-Maria van Schurman away from Protestant scholasticism (Descartes to Mersenne, November 11, 1640, AT III.231/CSMK 156); he praises the qualities of Mme Huygens in a letter to her husband that states that he would like him to communicate to her the *Essays* accompanying the *Discourse* in order to obtain

an opinion judged to be more estimable than that of most philosophers (Descartes to Huygens, March 22, 1637, AT I.624).

In 1649 Elisabeth writes to Descartes, who has just praised Queen Christine:

> Do not believe, however, that a description so advantageous gives me reason to be jealous. Rather, it leads me to esteem myself a little more than I did before she gave me the idea of a person so accomplished, who defends our sex from the imputation of imbecility and weakness that the pedants would have given it. (Elisabeth to Descartes, December 4, 1649, AT V.451–2/S 181)

It is thus the way in which Descartes speaks to Elisabeth of a woman that makes her change her mind about the supposed weakness of the female sex in general. Though we can doubt that Elisabeth ever thought that women in general were not capable of intellectual accomplishments, it is certain that Descartes's relations with learned women revealed these accomplishments for all to see.

This female public is consciously considered by Descartes because it plays a didactic and publicizing role for his philosophy. The asexual character of the moral and intellectual analyses of what it is to be human is a theoretical principle that also constitutes a bias against the philosophies of the Schools. This bias is provocative since it consists in opposing women to the class of doctors. Thus Descartes writes in this regard of Elisabeth: "I set far more store by her judgments than by that of those learned doctors whose rule is to accept the truth of Aristotle's views rather than the evidence of reason" (Descartes to Pollot, October 6, 1642, AT III.577/CSMK 215). In the same way, he claims concerning Christina of Sweden that she "possesses more knowledge, more intelligence and more reason than all the learned churchmen and academics" (Descartes to Brasset, April 23, 1649, AT V.350/CSMK 375). There is thus in Descartes's choice of female interlocutors something that is not merely fortuitous—it has a philosophical sense. This sense is not clearly feminist; it is above all anti-scholastic. It functions to show the specificity of the new philosophy as individual and elitist, even if its vocation is potentially universal. This aim has the corollary of recognizing women as philosophical subjects.

It is not surprising then that Cartesianism is often presented as a philosophy for ladies, which is also used as a way to mock it. This is shown by the use of this theme in Molière,[3] or the care taken by the "official" biographer of Descartes, Adrien Baillet, to (p. 568) defend the philosopher against the objection of frequenting too much the fairer sex! It is undeniably the tendency of Cartesianism to be associated with a female public, even when this tendency is used in a misogynistic way to discredit this philosophy. In the comic fiction in which Descartes is the hero, Huet makes him say, for example:

> All the misfortunes that my Doctrine has drawn to me from these people [the Dutch scholastics] have disillusioned me. If I were the master, I would only want women for disciples. I have found them to be *more gentle, more patient, more docile*.

> (Huet 1996: 74)

But this passage, situated in a work that is supposed to scoff at and criticize Descartes, reflects Descartes's own view, as shown in this passage from Baillet:

> With regard to the opinion that some wanted to give of the supposed affection that M. Descartes had for persons of the other sex, it seems that it has no other source than the slander of the Ministers of Holland, of which we have spoken, and a wicked explanation on the part of Sieur Borel, who testifies that our Philosopher did not dislike the conversation of women. M. Descartes had said to some of his friends that in matters of philosophy, he found the ladies to whom he talked on this subject to be more gentle, more patient, more docile, in a word, more void of prejudices and false doctrines than many men. But to conclude from this that he liked the company of women, it would be necessary to have seen him as in greater association with the sex than he was.
>
> (Baillet 1972: II.500)

The claim of Huet, intended to ridicule Cartesianism, constitutes in reality an explicit Cartesian thesis. And this thesis postulates a superiority of the female mind in the matter of true philosophy. There is in the female public the specific qualities that render it more apt to comprehend Cartesian thought. Having not been contaminated by the prejudices of the Schools, this public is more open to the principles of the new philosophy. But we see that this presentation of the female mind on the part of Baillet equally has the goal of reducing Descartes's supposed attraction to women to a strictly intellectual level. The idea of a connection with women is thus associated with Descartes and with his philosophy during this time.

But the question of whether there are specific elements of Cartesianism that are favorable to the intellectual emancipation of women requires as well, and above all, the consideration of the philosophy itself and not merely its modes of diffusion and Descartes's personal relations with literate women. Various Cartesian motifs have been proposed to explain the fact that this philosophy seemed welcoming to women. There is the rejection of scholastic knowledge (to which women did not have access), the autonomy of a thought that is individually constituted, the conception of reason as a universally shared faculty (Atherton 2001: 22), and finally, the distinction between the soul and body (p. 569) (Gallagher 1988: 34), which makes the soul an asexual substance. The examination of these different motifs seems to show a universalization of the capacity to think in a philosophical manner more than a feminization of this capacity. In fact, women are included in this remarkable extension of beings who are not only rational but also apt to truly begin to philosophize. The opening of the *Discourse* constitutes a philosophical manifesto: "good sense is the best distributed thing in the world" (AT VI.1/CSM I.111). This does not mean, of course, that all individuals are equally gifted intellectually (as the irony in the rest of the sentence shows). But the Cartesian hierarchy of mind includes no gendered criterion. This is again confirmed by the dedication to Elisabeth, in which Descartes claims that she

is the only person to have perfectly understood him (AT IXB.22/CSM I.192), without his typology of minds being sexed at any time.

The Cartesian philosophy rests on principles that mobilize attention and not erudition, an individual and native quality that exists in either sex. In this sense, no theoretical a priori hinders a feminine exercise of philosophy. But it is equally necessary to analyze what Descartes says about women as objects of study in order to have a complete view of his philosophical relation to the feminine. We can turn here initially to his embryological writings. The way in which sexual differentiation occurs during the formation of the fetus can make it possible to measure a physiological or psychophysiological inequality between women and men. Three Cartesian texts clearly offer what we can call an embryology: a collection of notes published in the *Opera posthuma* of 1701 with the title, *Cogitationes circa Generationem Animalium*; another edited by Foucher de Careil with the title, *Excerpta anatomica*; and finally, and above all, a work entitled by Clerselier, *De la formation du fœtus* (and by Adam and Tannery, *Formation de l'animal*), Descartes's most mature work in this domain, which Clerselier published in 1664. These different fragments reveal a considerable evolution in Cartesian thought. We see the author detach himself from an unequal description of the respective roles of male and female influenced by humoralism, and move toward more strictly mechanistic hypotheses that renounce any unequal foundation. Descartes affirms the existence of two seeds, the composition and function of which do not seem different according to whether they are male or female. Their mixture by a process of fermentation produces an embryo (*Description of the Human Body*, AT XI. 253/CSM I.321–2). As for sexual differentiation properly speaking, this occurs in the embryonic state by the sieving of the flow of blood. The agglomeration of matter forms one sex or the other in an entirely mechanistic manner, as equally occurs for all the other organs. This action does not suppose any mold, any pre-existing form, or any specific humor that determines it. In this passage from the *Description*, which is the most mature of his thought on these questions, Descartes indicates no physiological or psychic difference between the male fetus and the female fetus. We can conclude from it that the difference between the sexes is only a modal difference in the sense of article 61 of the first part of the *Principles of Philosophy*—that is to say, a distinction between "two different modes of the same substance" (AT IXB.52/CSM I.214). There are no elements in Cartesian psychophysiology that indicate inequalities between women and men due to their sex. This fact is reinforced by a study of the correspondence between Descartes and Elisabeth.

(p. 570) When we leave biological analyses and turn to moral analyses, we again discover some important elements. At several points Elisabeth evokes physiological, psychophysiological, or spiritual characteristics supposedly specific to women (for example the "vapors" that suddenly and completely prevent thinking (AT III.665/S 65)). And she always presents these characteristics as weaknesses (AT IV.335/S 127). Elisabeth thus poses a problem never spontaneously evoked by Descartes, that of a feminine way of thinking (a psychophysiological dimension of thought) or of meditating (a purely intellectual dimension of thought). She claims:

> Know thus that I have a body imbued with a great part of the weaknesses of my sex, so that it is affected very easily by the afflictions of the soul, and has none of the strength to bring itself back into line, as it is of a temperament subject to obstructions and resting in an air that contributes strongly to this. In people who cannot exercise much, it does not take a long oppression of the heart by sadness to obstruct the spleen and infect the rest of the body by its vapors. (Elisabeth to Descartes, May 24, 1645, AT IV.208/S 88–9).

The idea of a weak sex is topical and Elisabeth gives Descartes the occasion to pronounce on this essential element of psychophysiology (notably in the humoral medicine of the time). The philosopher is interested in the various weaknesses of the mind and body, but these never have a sexual aspect for him. This absence evidently has a philosophical significance. The force of the passions does not have a sexual and a fortiori gendered dimension in Cartesian thought.

This fact is confirmed in the *Passions of the Soul*. Contrary to humoralism, Cartesian physiology presents asexual passions. Even in some lines concerning sexual love in article 82 of this work, it is never a question of the differences in comportment between women and men. In contrast, the feminine mores are generally distinguished from masculine mores in the discourse of this time, as shown for example by the profoundly sexed analyses of love in another treatise on the passions that was popular at the time, namely the *Caractères des passions* of Marin Cureau de la Chambre (1640–62).

The philosophy of Descartes is thus perfectly neutral from the point of view of gender. It does not use sex as a parameter to judge the ability to think rigorously.

2. Cartesian Women and Cartesian Philosophers

The distinction between what are called the “Cartesian women” and the “Cartesian philosophers” is necessary but unstable: we can even say that it must be at the heart of current reflections on the redefinition of the philosophical canon in the modern age. This distinction makes it possible to ask what the criteria are for inclusion in this canon. When Madame de Sévigné calls her daughter, Madame de Grignan, “*ma petite cartésienne*” (p. 571) and complains that she was not present at a “dinner of the *bels esprits*” when the principle of continued creation of her “*Père* Descartes” was discussed without doubt this allows us to rank Madame de Grignan among the Cartesian women of her time (Sévigné to Grignan, February 16, 1689; Sévigné 1974–8: III.504). De Grignan also claims to be part of this “sect” and does not want to “abjure” it (Grignan to Sévigné, November 24, 1678; Sévigné 1974–8: II: 636). Having written nothing on Descartes in particular or on philosophy in general, however, she cannot fall within the category of Cartesian philosophers. The Cartesians must first of all be understood to be a group of cultured women sensitive to the ideas of the new philosophy, as Cartesianism is often called at this time. There is indeed a whole intellectual life centered on such women, especially in France.[4]

There are personalities organizing what are described as Cartesian salons, of which Mme de Bonnevaux, assisted by her friend Mme de Gueudreville, is an example (Clair 1980: 47).[5] These two frequent the conferences of Rohault. Marguerite Buffet claims, with respect to the salon of the former, that “the philosophy of Descartes never has received more honor” (Buffet 1668: 265–6), and Huygens testifies to having assisted in the lectures on Cartesian physics by Mme Gueudreville at this salon (Clair 1980: 49). These salons directed by women, where Cartesian theses were discussed, illustrate a more general movement during the course of the seventeenth century that excites curiosity in the sciences among cultured literary circles. As L. Timmermans notes, “it is Cartesianism that plays a determining role in this public conversation” (Timmermans 1993: 124).

Even so, these women cannot be precisely defined as Cartesian philosophers. The ambiguities of these feminine uses of Cartesianism are explained by the fact that there is no question here of scholarly use in the usual and strict sense of the term. In speaking of Cartesian problems, Cartesianism in a salon, an alley, or a dinner is not the same as in a university, a monastery, or especially in a book.[6] By their very existence, these “Cartesian” women in a broad sense of the term testify to a feminist dimension of Cartesianism. Descartes has thought and practiced the inclusion of women in the field of philosophy and certain realities of the literate world concretize his intentions. Learned women have never been as numerous as in the seventeenth century and the philosophy that makes one think, during this time, is essentially Cartesianism.[7]

(p. 572) Parallel to these popular or semi-worldly feminine practices of Cartesianism, we see that even during Descartes’s lifetime and throughout the second half of the seventeenth century, properly philosophical feminine practices are established,[8] most often inspired in one way or another by Descartes and his philosophy. These uses of Cartesianism clearly reveal a true philosophical practice, since they give rise to writings in which Cartesian thought constitutes a central element of discussion. There can be women who philosophize directly in contact with Descartes (as in the case of Elisabeth of Bohemia, in her correspondence with him). But equally there can be female readers of Descartes, such as the French readers Anne de la Vigne, Marie Dupré, and Catherine Descartes[9] (see Harth 1992: 78–98; O’Neill 1999: 239–45) and the English readers Anne Conway (see Broad 2002: 65–89; Hutton 2005: 10–14), Mary Astell (see Broad 2015: 177; Detlefsen 2017: 191–205; Shapiro 2008: 247–50), Margaret Cavendish (Broad 2002: 35–64), and Damaris Masham (Broad 2002: 114–40).

Even though the definition of what can be called Cartesianism in the seventeenth century raises questions,[10] these literate women all have in common the discussion of Descartes as an essential (although of course not exclusive) source of their own philosophical reflections. Two very different cases of feminine uses of Cartesianism are evoked, those of Elisabeth of Bohemia and Mary Astell. These two very different women are intentionally chosen to show the diversity of what can be called a Cartesian philosopher in the modern era. With respect to the former, there is no concern here to retrace either her philosophy or her connections with Descartes. Rather, what is of interest is that she is defined as a Cartesian from the seventeenth century, and even as “the leader of the Cartesians of her

sex", according to the curious expression of Baillet (Baillet 1972: II.230).[11] This means that she is considered as an adept of the Cartesian philosophy, for reasons that appear at the same time evident and substantial (her correspondence with Descartes, his dedication to the princess in the *Principles of Philosophy*). But in a strictly philosophical or doctrinal sense the Cartesianism of Elisabeth can be discussed and even considered to be questionable.[12]

(p. 573) These questions concerning the Cartesianism of Elisabeth are peculiar to contemporary historiography. They were not possible during the modern era because there was no access to the letters from Elisabeth to Descartes (until the 1879 edition of Foucher de Careil), since she had refused their publication in the posthumous edition of Descartes's correspondence. More curiously, she was not discussed for a long time, even after there was finally an edition of these texts. This can be attributed to the view that her philosophy does not differ from Descartes's. Such a view has a foundation in Descartes's own remarks. In presenting her in his dedicatory letter as the only one who also understood the whole of his philosophy, the philosopher implicitly makes her an official disciple. Elisabeth is, further, the engine of the elaboration of a whole section of Cartesianism, namely the moral and political part, through her questions and objections to Descartes in their correspondence. It can thus be said that Elisabeth is a philosopher because she discusses philosophy in writing with Descartes. But she also is Cartesian, not because she shares all of Descartes's ideas, but because she actively participates in the publicity and the dissemination of Cartesianism in Europe. It is in this sense that the expression of "leader" must be understood. Elisabeth thus constitutes a first case of "female Cartesianism". Though she has long been understood to be very close to Descartes from a strictly philosophical point of view, the loosening of this link does not affect what can still be called her Cartesianism. This needs only to be reconfigured and given a new sense. What Cartesianism requires is not so much rigorous theoretical conformity as a desire to disseminate this philosophy, a mission all the more natural given that the dedication of Descartes has made her a living advertisement of his philosophy. Moreover, Elisabeth plays an important role in the spread of Cartesianism in Germany. She also tries to make some leading intellectual figures of her time aware of this philosophy, such as Anna-Maria van Schurman. As abbess of Herford, she organizes a fascinating intellectual home that mixes different forms of philosophical and religious heterodoxy. Baillet describes it in these terms:

> Our Princess Philosopher accepted at the end of her days the Abbey of Hervorden […] She made of the abbey a philosophical academy for all kinds of people of intellect and letters, without distinction of sex or even religion. Roman Catholics, Calvinists, Lutherans were equally received there, without the exclusion even of the Socinians and the Deists. *It was enough to be admitted that one was a philosopher, and especially an amateur of the philosophy of M. Descartes* […] This abbey was considered to be *one of the primary Cartesian schools*, but it lasted only until the death of the Princess.
>
> (Baillet 1972: II.235; my emphases)

A professor does not have to adhere to what he teaches. Yet he must have understood what he is teaching and clearly explain it in order to be a good teacher. Elisabeth is Cartesian first of all because she has contributed decisively to the diffusion of Cartesianism. Perhaps it (p. 574) must be said that she is a philosopher on the one hand, student of Cartesianism on the other. The connection between the two elements (forged by her correspondence with Descartes) makes her a Cartesian philosopher in the specific sense just identified.

The case of Mary Astell is very different. During recent decades, important studies have shown the central role of Descartes among the women philosophers of the seventeenth century, most especially in Great Britain, with Cavendish, Conway, Astell, and Masham. Their Cartesianism is never completely faithful to Descartes; it is always critical of his philosophy. This Cartesianism also is not necessarily firsthand: Cavendish, Conway, and Astell know it in part through the Cambridge Platonists.[13] In her recent monograph on Astell, J. Broad insists on the influence of Descartes on her, on epistemological and metaphysical as well as moral levels. More precisely, Broad's analyses insist on the importance of the Cartesian influence on the rational epistemology, ontological arguments proving the existence of God, dualistic metaphysics, and theory of virtue and the passions in the philosophy of Astell.[14] This shows the extent of this influence. Astell cites English translations of the *Principles of Philosophy* and the *Passions of the Soul*; she follows the method of the logicians of Port-Royal; she refers to such English popularizers of Cartesian thought as Henry More and John Somers. Broad thus defines Astell as "a firm Cartesian" while also noting that she is opposed to the thesis that we have clear and distinct ideas of the soul and God, and more generally that we have innate ideas (Broad 2015: 9–10).

Elisabeth as well as Astell demonstrate that the feminine practices of Cartesianism open up new meaning for this philosophy. These uses of Descartes equally enrich the field of Cartesianism in the modern era. It is always difficult and in part arbitrary to decide what makes an author Cartesian. Is it necessary to adhere to a minimal "credo" and if so, what are its elements? Doubt? The method? The first principle? Dualism? Even when called Cartesian, one does not strictly respect all of these points, otherwise there would be no need to write anything other than a manual on Descartes. Elisabeth and Astell as well as Cordemoy and Malebranche prove this, each in their own way.

(p. 575) 3. Cartesian Feminism(s)?

These two different philosophical uses of Cartesianism show equally that not all feminine Cartesianism is feminist Cartesianism. Astell illustrates a union of the two notions, which is not the case with Elisabeth. To be sure, generally women are not necessarily feminists, far from it. In philosophy more specifically, being a woman philosopher does not require an interest in the question of the feminine and/or militate in favor of female emancipation.

However, the existence of Cartesian philosophers and learned women can constitute a feminist argument. Even their existence can be a manifesto in favor of feminine intelligence. But this argument is not necessarily internal to the thought of the thinkers and philosophers in question. They can be feminist symbols without deploying feminist reflection, as the case of Elisabeth of Bohemia well shows. On the other hand, when Mary Astell gives a feminist dimension to her philosophy, this undeniably has the advantage of bringing together theory and practice, reflection and exemplification. Yet the most complete theorization of a Cartesian feminism is proposed by a man, François Poulain de la Barre (1647–1725). He is the author of three feminist works directly inspired by Cartesian philosophy: *On the Equality of the Two Sexes* (*De l'égalité des deux sexes*) in 1673; *On the Education of Ladies* (*De l'éducation des dames*) in 1674; and *On the Excellence of Men* (*De l'excellence des hommes*) in 1675. His work proves that a complete feminist doctrine can be based on Cartesianism. It even proves that the first exhaustive feminist theory of modern times is Cartesian.[15] Since the learned are not spontaneously feminist and their exemplary value is relative and partly retrospective, we must also include feminist men in this work of reshaping the philosophical canon. We cannot rigorously appreciate a possible feminist dimension of Cartesianism by mobilizing only women philosophers. Descartes has inspired feminist vocations in male philosophers, as Poulain remarkably proves.

In Poulain, the goal is constantly and explicitly feminist. To make a clean sweep of the prejudices that encumber the mind is first and foremost to make a clean sweep of the misogynist prejudice that is the origin of all others, according to Poulain. The challenge is to prove the intellectual, bodily, and moral equality of the two sexes according to the Cartesian method of reasoning. This allows subsequently for the proposal of an educational and political program that envisions the inclusion of women in all of the public functions of society. The Cartesianism of Poulain is a practical Cartesianism. The method and order of the sciences elude metaphysics and on the contrary insist on the anthropological results that derive from Descartes.[16] These results allow for a liberation of the intellectual forces that Poulain puts in the service of female emancipation.

(p. 576) Poulain notes that the philosophical practices of Descartes himself show his desire to include women in the field of philosophical actors. In giving advice on reading to a woman who wants to become a scholar, he writes: "if you want to read the Principles of Descartes, and the first volume of his letters written to the Queen of Sweden, and to the Princess of Bohemia, this will still be best. You will see by these letters that he did not judge women incapable of the highest sciences" (Poulain 2011: 272). He subsequently proposes an anthropology that is egalitarian in all its aspects. This frees women from the weakness of mind assumed of their sex, by means of two different arguments. One concerns in some way the order of pure understanding. In claiming that "the mind has no sex" (Poulain 2011: 99), Poulain posits an asexual capacity to think.

The other argument concerns thoughts in which the body plays a role. In reality, these are more numerous, since a human being is before all else a lived substantial union of the body and the mind. Poulain develops a thorough demonstration of the absence of sexual

determination in this second kind of thought. Discussing the humoral model, he arrives at the conclusion that all human organs are identical between women and men, with the exception of the genital organs: it is necessary not “to carry too far the difference between the sexes” (Poulain 2011: 128). There is never any need to distinguish between feminine thoughts and masculine thoughts because sex is not a real and rigorous parameter for discerning different ways of thinking. This second point of the demonstration is the more important, although less emphasized than the first in studies of Poulain. It is for this reason that in the matter of feminist reflection on Cartesianism, anthropology is more decisive than metaphysics because once again, as Descartes himself has emphasized elsewhere, we nearly always think with our body. Poulain offers a new answer to the Cartesian enigma of the psycho-physical union that preoccupies so many post-Cartesians. In fact, he responds in some way to questions that Elisabeth posed on the reciprocal influence of her body and her mind on her manner of thinking. She pointed in particular to her sexual and even gendered dimension, a dimension that eluded Descartes. But Poulain reaffirms a gender neutrality that can already be deduced from Cartesian texts but that he precisely demonstrates.

Yet Poulain goes farther in deducing the social consequences that a true Cartesian pedagogy would have for everyone. According to the method of Descartes, the equality of the sexes is a legitimate and necessary deduction of anthropology. And by means of a deduction considered as entirely legitimate and necessary, equality must introduce a complete modification of society and of the hierarchical principles that structure it. Poulain makes of Cartesianism a social and political philosophy.

The thought of Poulain thus allows a double reconfiguration of the philosophical canon. From the point of view, first, of its contents, it shows the importance of the idea of the equality of the sexes for thinking of a global equality among human beings, even during the proto-Enlightenment. Second, from the point of view of the male actors of this canon, a man finds himself at the center of any feminist interpretation of Descartes. What is most interesting is perhaps that Poulain himself appeals to a reconfiguration of the canon: he claims in effect that if there are few remarkable women in human history, this is simply because men have written it and have always privileged their sex. (p. 577) In reality, there have always been women philosophers and learned women, but their accomplishments have disappeared with them, from lack of transmission and perpetuation. The (re-)discovery of this major part of the uses of Descartes that constitutes the philosophy of Poulain profoundly changes the panorama of Cartesianism in the second half of the seventeenth century. We can “complete” Descartes, as Cordemoy, La Forge, or Rohault have on essential but also circumscribed points. We can also give to it a social and political dimension that completely redesigns the internal balance of the concerns of Cartesianism.

In emphasizing the bias in the historian’s view of science and its protagonists, Poulain finally allows us to reflect on the role of Cartesianism in the longer history of feminism. Several contemporary historians of philosophy attempt to assign a place and sense to this philosophy in the history of feminism. Two scholars in particular[17] defend the idea that

Cartesian philosophy had an essential role in the masculinization of modern science. Genevieve Lloyd first of all explains that modern reason is masculine reason; Susan Bordo subsequently parallels “the cartesian masculinization of thought” and “the seventeenth century flight from the feminine” (Bordo 1987: 97–118). This masculinization would involve nothing explicit or conscious, and Lloyd and Bordo attribute it not to Descartes himself but rather to the uses that are made of his thought. Lloyd insists on the idealization of the field of the “unitary pure thought” according to Descartes, which it is necessary to separate as much as possible from the rest of life (Lloyd 1984: 47). She recalls that the collective procedures of the scientific community are little favorable to women (Lloyd 1984: 49) and that finally the ideal of reason separates the search for truth from everyday concerns, reinforcing the separation of the roles according to sex (Lloyd 1984: 49–50). She presents as an established fact that contemporary feminists would be critical with regard to Descartes (Lloyd 2002: 9), particularly due to a dualism in his thought that reinforces the denigration of women, associated with the body, in opposition to reason, associated with “male transcendence” (Lloyd 2002: 9).

However, such interpretations are based on a too partial vision of Cartesian philosophy, reduced essentially to its metaphysics—as Lloyd must admit. She does not take account of the diversity of the replies to and the summaries of Cartesianism that are increasingly better documented by current research. Thus, if despite these remarkable elements Cartesianism nevertheless remains associated with the masculinization of knowledge at times, this is due not to Descartes himself but to a broader understanding of the conscious and unconscious models of modern science. Such an understanding corresponds to no Cartesian thesis in the metaphysical, biological, psycho-physical, or moral domains. It is due rather to the fact that women have always been materially excluded from the sciences. Before Descartes, they are also tied to their nature for theoretical reasons. Cartesianism makes this nature disappear. The objectivity denounced as a mask of the masculinization of science can be interpreted completely differently—that is, as a form of gender neutrality according to Descartes. This objectivity then makes it possible **(p. 578)** to extract at the same time theories of feminine inferiority and of the differentiation between the sexes (whether misogynist or feminist).

All of these philosophical studies have posed the question of women and of the feminine, whatever the period or author considered. And every philosophical anthropology now has a chapter on these questions most of the time. But Cartesianism constitutes a particular and crucial moment in the history of the relations between the aims of philosophy and feminist claims. This is explained by theoretical reasons (the new Cartesian science posits a human being fundamentally non-sexual and ungendered) and by practical reasons (the importance of the philosophical vocations for women and the feminist vocations for men that Cartesianism has permitted). The way Descartes emerges out of the misogynist reflexes of thought on the difference between the sexes, of which the last paragraph of Spinoza’s *Political Treatise* is still a striking example, is itself remarkable.

Translation by Tad Schmaltz

References

Adam, Antoine (1997), *Histoire de la littérature française du XVIIe siècle*, 2 vols. Paris: A. Michel.

Anonymous (1703), *L'érudition enjouée ou Nouvelles sçavantes, satyriques et galantes*. Madrid: Pierre Ribou.

Atherton, Margaret (2001), "Cartesian Reason and Gendered Reason", in Louise M. Antony and Charlotte E. Witt (eds.), *A Mind of One's Own*. Boulder, CO: Westview Press, 19–35.

Baillet, Adrien (1972), *Vie de M. Descartes*, 2 vols. Hildesheim: Olms Verlag.

Bordo, Susan (1987), *The Flight to Objectivity: Essays on Cartesianism and Culture*. Albany: State University of New York Press.

Bordo, Susan, ed. (1999), *Feminist Interpretations of René Descartes*. University Park: Pennsylvania State University Press.

Broad, Jacqueline (2002), *Women Philosophers of the Seventeenth Century*. Cambridge: Cambridge University Press.

Broad, Jacqueline (2015), *The Philosophy of Mary Astell: An Early Modern Theory of Virtue*. Oxford: Oxford University Press.

Buffet, Marguerite (1668), *Nouvelles observations sur la langue française … avec les Éloges des Illustres Savantes tant anciennes que modernes*. Paris: J. Cusson.

Citton, Yves (2007), "L'invention du spinozisme dans la France du XVIIIe siècle", in Laurent Bove, Tristan Dagron, and Catherine Secrétan (eds.), *Qu'est-ce que les Lumières radicales?* Amsterdam: Editions d'Amsterdam, 309–24.

Clair, Pierre (1980), "De Gueudreville, interlocuteur de Rohault", *Recherches sur le XVIIe siècle* 4: 47–52.

Detlefsen, Karen (2017), "Cartesianism and Its Feminist Promise and Limits", in Stephen Gaukroger and Catherine Wilson (eds.), *Descartes and Cartesianism: Essays in Honour of Desmond Clarke*. Oxford: Oxford University Press, 191–206.

Gallagher, Catherine (1988), "Embracing the Absolute: The Politics of the Female Subject in Seventeenth-Century England", *Genders* 1: 24–39.

Genlis, Mme de (1784), *Le club des Dames ou le retour de Descartes. Comédie, en un Acte, en Prose*. Paris: Bureau de la Bibliothèque des Romans.

Gouhier, Henri (1978), *Cartésianisme et augustinisme au XVIIe siècle*. Paris: Vrin.

(p. 579) Harth, Erica (1992), *Cartesian Women: Version and Subversion of Rational Discourse in the Old Regime*. Ithaca, NY: Cornell University Press.

Huet, Pierre-Daniel (1996), *Nouveaux mémoires pour servir à l'histoire du cartésianisme*. Rezé: Séquences.

Hutton, Sarah (2005), "Women Philosophers and the Early Reception of Descartes: Anne Conway and Princess Elisabeth", in Tad Schmaltz (ed.), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*. London: Routledge, 3–23.

Kolesnick-Antoine, Delphine, ed. (2013), *Qu'est-ce qu'être cartésien?* Lyon: ENS Editions.

Kolesnick-Antoine, Delphine, and Marie-Frédérique Pellegrin, eds. (2014), *Elisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin.

Lloyd, Genevieve (1984), *The Man of Reason: "Male" and "Female" in Western Philosophy*. Minneapolis: University of Minnesota Press.

Lloyd, Genevieve (2002), *Feminism and History of Philosophy*. Oxford: Oxford University Press.

Marchal, Roger (1991), *Madame de Lambert et son milieu*. Oxford: The Voltaire Foundation.

Moreau, Pierre-François (2007), "Spinoza est-il spinoziste?", in Laurent Bove, Tristan Dagron, and Catherine Secrétan (eds.), *Qu'est-ce que les Lumières radicales?* Amsterdam: Editions d'Amsterdam, 289–98.

Moréri, Louis (1759), *Le grand dictionnaire historique*, 10 vols. Paris: Chez les libraires associés.

O'Neill, Eileen (1999), "Women Cartesians, 'Feminine Philosophy', and Historical Exclusion", in Susan Bordo (ed.), *Feminist Interpretations of René Descartes*. University Park: Pennsylvania State University Press, 232–57.

Orcibal, Jean (1950), "Descartes et sa philosophie jugés à l'Hôtel de Liancourt, 1669–1674", in E. J. Dijksterhuis and Cornelia Serrurier (eds.), *Descartes et le Cartésianisme Hollandais*. Paris: Presses Universitaires de France, 87–107.

Pal, Carol (2012), *Republic of Women: Rethinking the Republic of Letters in the Seventeenth Century*. Cambridge: Cambridge University Press.

Pellegrin, Marie-Frédérique (2013), "La science parfaite. Savants et savantes chez Poulain de la Barre", *Revue philosophique de la France et de l'étranger* 3: 377–92.

Pellegrin, Marie-Frédérique (2014), "Elisabeth 'chef des cartésiennes de son sexe' ", in Delphine Kolesnick-Antoine and Marie-Frédérique Pellegrin (eds.), *Elisabeth de Bohême face à Descartes: deux philosophes?* Paris: Vrin, 45–63.

Pellegrin, Marie-Frédérique (2015), “Les critères de la radicalité en question : le cas Poulain de la Barre”, *Revue de synthèse* 136: 355–73.

Poulain de la Barre, François (2011), *De l’égalité des deux sexes; De l’éducation des dames; De l’excellence des hommes*, ed. M.-F. Pellegrin. Paris: Vrin.

Reguig-Naya, Delphine (2002), “Descartes à la lettre: poétique épistolaire et philosophie mondaine chez Mme de Sévigné”, *Dix-septième siècle* 216: 511–25.

Schmaltz, Tad (2005), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*. London: Routledge.

Sevigne, Mme de (1974–8), *Correspondance*, 2 vols. Paris: Gallimard.

Timmermans, Linda (1993), *L’accès des femmes à la culture sous l’Ancien Régime (1598–1715)*. Paris: Champion.

Shapiro, Lisa (2008), “Mind and Body: Descartes’ Mixed Relation to Feminist Thought”, in Neil Robertson, Gordon McOuat, and Tom Vinci (eds.), *Descartes and the Modern*. Newcastle upon Tyne: Cambridge Scholars Publishing, 235–53.

Notes:

([1]) Neither of these two categories, Cartesianism or feminism, is self-evident. Their reciprocal definitions are themselves fundamental philosophical questions. The whole of this chapter in a way aims to think about the first category from the point of view of the second. Concerning the latter, the essential question that it raises in the context of our reflection concerns anachronism. With respect to its definition, we opt for something broad: feminism will be called any stand against patriarchal values and in favor of female emancipation of any kind (psycho-physical, intellectual, social, political). The notion was created in the nineteenth century and its use in a previous era therefore must be discussed. On the other hand, one can think that this notion can be applied at any time with the definition we have given. In fact, this is our position. The assignment of an original date to feminism is always questionable and even arbitrary. For example, in the *Routledge Companion to Feminism and Postfeminism*, the first chapter is entitled “Early Feminism” and describes a period extending from 1550 to 1700. However, the second chapter, “First Wave Feminism”, claims in its first line: “modern feminism begins with Mary Wollstonecraft’s *Vindication of the Rights of Woman* (1792)”. This seems to imply that before 1792, we cannot speak of feminism in the full sense of the term. But what about the title of the first chapter? This also raises the question of why Wollstonecraft should be the starting point rather than Gournay or Poulain, for example. Nothing settles the matter in an indisputable way.

([2]) “The conferences of Jacques Rohault were not designed for specialists alone”, “even the Ladies often hold the first rank”, Clerselier does not fail to recall in the little adver-

tisement that he slips into the preface to the second volume of the *Letters of M. Descartes* (Gouhier 1978: 71).

([3]) We find this ironic description of Cartesianism in different comic works, including Molière's later work, *Femmes savantes* (1672). In *L'érudition enjouée*, for example, the marquise Durectangle is presented thus: "You know the passion that this marquise has for the philosophy of Descartes and you know how she eternally fills all her speeches with what she has retained from this philosophy: Whether or not there were women at her house […] she kept them constantly in the system of Descartes, of whom not one of them had the least knowledge" (Anonymous 1703: 40).

([4]) Adam 1997: II.424: "Around 1660, the first signs of a widespread diffusion of Cartesianism appeared. There is henceforth a true Cartesian party." See also Orcibal 1950: 87–107.

([5]) One could equally cite Mme de Lambert: "Fontenelle will respond to the dual ambition that drives the marquise when she decides to receive/restore the precious alley by maintaining the tradition of the Cartesian circles" (Marchal 1991: 98).

([6]) Thus D. Reguig-Naya notes with respect to the references to Descartes in the correspondence of Mme de Sévigné that she "is more interested in the reception of Cartesianism than in Cartesianism itself; she is playing on the worldly phenomenon which she summarizes in the interest of a philosophy that no longer provides the opportunity for a meditation other than that of a second-degree distraction" (Reguig-Naya 2002: 515).

([7]) The philosophical reality of the seventeenth century is Cartesian, and it is around Descartes and in relation to him that the discussions are engaged. Schmaltz proposes to use the image of Sperber describing the expansion of ideas as a viral epidemic: "Cartesianism provides a striking example of a system, or rather a collection of systems, deriving from the work of Descartes that took hold and spread throughout early modern Europe" (Schmaltz 2005: xi).

([8]) Pal describes in detail the exclusively feminine learned circles outside of the predominately male literary circles of the modern era (Pal 2012).

([9]) Moréri writes with respect to Catherine Descartes: "niece of the famous philosopher, *René Descartes*, the memory of whom she duly supported by her mind and her knowledge" (Moréri 1759: IV.119).

([10]) As Schmaltz claims, "it must be said that the early modern reaction to Descartes was never as straightforward as the contrast between Cartesianism and anti-Cartesianism suggests. It always was an option to choose certain elements of Descartes's system while rejecting others, or to combine certain principles in Descartes with tenets that he never explicitly considered. And sometimes even those who were overt critics of Cartesianism worked within a framework set by Descartes. What emerges from the complex process of assimilation and critique are different forms of Cartesianism that are related in varying ways to Descartes's thought, but that include philosophically significant elements that go

beyond what we find in his own texts" (Schmaltz 2005: xiii). See equally the important collection, Kolesnick-Antoine 2013.

([11]) For a complete analysis, see Pellegrin 2014: 45–61.

([12]) I refer here to the collective work on Elisabeth of Bohemia, Kolesnik-Antoine and Pellegrin 2014, and notably to the articles therein of I. Agostini ("Le mythe du cartésianisme d'Elisabeth"), of D. Kolesnik-Antoine ("Elisabeth philosophe: un cartésianisme empirique?"), and of S. Ebbersmeyer ("Epicure et argumentations épicuriennes dans la pensée d'Elisabeth").

([13]) P.-F. Moreau has posed the question, "Spinoza est-il spinoziste?" (Moreau 2007) with respect to the uses of Spinoza among proto-Enlightenment and Enlightenment figures, and Y. Citton describes "L'invention du spinozisme dans la France du XVIIIe siècle" (Citton 2007). The two articles contribute to the formation of the idea of a Spinozism known second-hand, without always a precise and direct knowledge of the Spinozistic source text, but a second-hand knowledge that would not prevent it being called Spinozism in a legitimate sense. The Cartesianism of the women of the seventeenth and eighteenth centuries allows us to think of a Cartesianism without Descartes, which also relies on second-hand knowledge and the formation of Cartesian idiosyncrasies specific to a particular time.

([14]) Broad even recalls elsewhere the diversity in the recent literature of different characterizations of Astell's Cartesianism: "in the past few decades, commentators have characterized Astell's epistemological approach in different ways. Some have called her a 'Cartesian rationalist' and an advocate of 'Cartesian method' while others have labeled her a 'Cartesian Platonist'. These epithets capture some important aspects of Astell's thought. First, Astell is certainly a rationalist insofar as she regards knowledge as founded on reason and not sensory experience. Like Descartes she agrees that we can depend on the senses to assist us in the day-to-day preservation of our bodies" (Broad 2015: 26–7).

([15]) See the discussion by Pellegrin (2015) of the feminist criterion among the criteria of radicality proposed by J. Israel.

([16]) See for example his original reformulation of the *cogito*, considered in Pellegrin 2013: 386–8.

([17]) Bordo refers to a certain number of previous analyses that go in the same direction (Bordo 1999: 65–6).

Pascal and Port-Royal

Hélène Bouchilloux

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Pascal is the only Port-Royal writer to start an actual confrontation with Descartes, arguing that he is right to make philosophy a discourse from a principle, but wrong to reduce philosophy to a search for a wholly human wisdom. By adopting Jesus Christ and the dual nature of man, of which Jesus Christ is the model, as his principle, Pascal wants to show that Descartes's philosophy is not only useless for salvation, but also uncertain in its claim to certitude, certitude never being purely rational. The erroneous conception that Descartes has of the knowledge of nature, but also of the knowledge of oneself and of God, is therefore attributed to this metaphysical ambition.

Keywords: Blaise Pascal, Port-Royal, principle, philosophy, Jesus Christ, science, thought

THE question of Cartesianism at Port-Royal is a difficult one. Port-Royal is a nebula; and at the core of this nebula only Pascal offers a philosophy that confronts that of Descartes. The legend of a skeptical and fideist Pascal is forged early on, and it is consolidated in the academic lessons of Victor Cousin. This Pascal, disciple of Montaigne, is supposed to have been a rationalist in his *Lettres provinciales* in order to wrestle with the moral disorder of the Jesuits, but a skeptical opponent of Descartes in his *Pensées* in order to discredit the pretensions of human reason to come to a knowledge of the true and the good. Such a legend would seem to be confirmed by three fragments in which Descartes is mentioned:

> *Descartes*. In general terms one must say: "That is the result of figure and motion", because it is true, but to name them and assemble the machine is quite ridiculous. It is pointless, uncertain, and arduous. Even if it were true we do not think that the whole of philosophy would be worth an hour's effort. (L/K 84)
>
> Write against those who probe science too deeply. Descartes. (L/K 553)
>
> Descartes useless and uncertain. (L/K 887)

The content of these three fragments is consistent: Descartes is a physicist who is right to think that “everything is the result of figure and motion”, contrary to Aristotle, but who is wrong in his project of trying to constitute a philosophy whose framework consists in just this physics—that is, the project presented in the Letter-Preface to the *Principles of Philosophy*. Pascal’s critique is focused on this work. We will see later why this is the case. But the more interesting thing to note, first, is that it is with respect to this same work that Pascal also pays homage to Descartes—not as a physicist, but as a philosopher. Descartes is a true philosopher, even if his philosophy is “useless and uncertain!”

(p. 584) 1. Homage to Descartes

A true philosopher is someone who says things not haphazardly, nor even in conformity to a principle, but *from* a principle. In the opuscule *De l’art de persuader*,[1] Pascal is inspired by a distinction that he finds in Montaigne between, on the one hand, saying things without knowing why one is saying them nor why one ought to say them, that is, without being capable of justifying what is being said; and, on the other hand, saying things knowing why one is saying them and why one ought to say them, that is, being able to justify what one is saying. It follows that one can say the same thing, but with more or less force, according to the reasons one has for saying them or for having the right to say them.

Pascal gives this distinction drawn by Montaigne full scope in the *Pensées* under the theme “reasons of effects”: people, whether they be ordinary folk, really clever men, or perfect Christians, all say the same thing—that one must obey the laws and honor people of noble birth—but for different reasons. In the opuscule *De l’art de persuader*, the distinction is used to give Descartes his due. He is the true inventor of the *cogito*, even if Saint Augustine formulated it long before him. It is striking to see Pascal, in his use of Montaigne, rejecting a remark that Arnauld poses to Descartes in the Fourth Objections. According to Arnauld, Descartes is only repeating an argument from Book II of *On Free Will*. But according to Pascal, this argument is presented by Augustine only in passing, and it does not play the principal role there that it does in Descartes. Only Descartes makes the *cogito* the principle of an entire philosophy, for it is on the basis of the dualism between thinking substance and extended substance that he constructs a purely mechanist physics; and this is followed, on the basis of the union of the two substances in a human being, by a complete morality based on the control that free will exercises over the passions.

In contrast with a philosopher who simply assumes a principle to serve as the foundation for an entire philosophy, a theologian is content with drawing out the consequences of a principle that he does not assume on his own but rather receives from revelation. The theologian does not say things *from* principle but only *in conformity with* a principle. He believes in order that he might come to understand what he believes. And in communicating those things that he says in conformity with a principle, he says them only to the degree that he is constrained to say them in order to affirm orthodoxy and respond to here-

sies. The necessity of the doctrine, in theological discourse, does not undermine the contingency of its elaboration, which is historical rather than systematic.[2] By contrast, in philosophical discourse, the necessity of the doctrine goes hand in hand with the necessity of its elaboration, which is systematic, not historical. The philosopher speaks from within a set of propositions where everything occurs because it is ordered according to a principle.

Moreover, it must be admitted that what Pascal objects to in Descartes is not so much the systematic intention per se, but rather *his* systematic intention, that is, the search for (p. 585) wisdom within the limits of reason alone, even if religion is needed to complete this philosophical project through a kind of illumination that is other than reason's own.[3] Descartes is "useless and uncertain" because he cuts philosophy off from theology. One ought to be a true philosopher, like Descartes, but without the divorce from theology that invalidates his philosophy. And this is possible, for Pascal, on the condition that reason is provided with a principle that is none other than the principle demanded (but not simply assumed) by theology. Only reason can set up the Christian principle, which is the principle of faith, as a universal principle of reason.

Descartes is "useless" because his philosophy does not lead to salvation. It is uncertain because, being partly true and partly false, it does not allow one to take the true and leave behind the false. Descartes did not succeed in what he hoped to do because he hoped to rid himself of his old opinions in order to arrive at certitude, but in the end he did not achieve certitude. Only someone who has the proper perspective for judging everything can, at each point, distinguish the true from the false, or discern the true in the false—a task that Pascal takes on in his own philosophy.

2. Is God the Foundation of Science?

Turning now to the three fragments of the *Pensées* where Descartes's name appears, it is clear that Pascal's pronouncements concern only Descartes's physics. Descartes is in the right when he opposes Aristotle; but he is in the wrong when he probes science too deeply. It is worth analyzing these two claims.

By banishing final causes from physics, Descartes takes aim at those who, ignorant of the heterogeneity of the two natures that compose a human being—corporeal nature and spiritual nature—project onto corporeal nature their own composite being and thus speak spiritually about corporeal things and corporeally about spiritual things.[4] Because Pascal shares Descartes's conception of the dual nature of the human being, he too believes that one ought not to attribute to bodies the properties of minds. It cannot be said that bodies desire their natural place, that they resist their destruction, or that they abhor a vacuum. But it is also because he shares Descartes's conception of a direct union of the two heterogeneous natures in the human being that he believes, too, that the source of the error of the scholastics lies in the fact that the direct union of the two natures interferes with the apprehension of each of these natures: being indissociably body and mind, the human being cannot determine either that which is purely corporeal in the body or that which is

purely spiritual in the mind. And it is because he shares with Descartes the idea that the union of these two heterogeneous natures in the human being is knowable neither by pure understanding nor by the imagination, but only through sensation, that he believes that the human being is an unknowable object to himself.[5]

(p. 586) For Descartes, however, a knowledge of the essences of body and mind is possible because, while neither one nor the other is knowable through sensation, the mind can be known through pure understanding and the body can be known through the imagination. This is precisely where Pascal distances himself from Descartes, since for him both the essence of the body and the essence of the mind remain unknowable. But then how can the human being perceive the heterogeneity of the two natures of which he is composed? He apprehends it solely because it is inconceivable that a knowledge of body (and, along with it, a faculty of reason) can be attributed to corporeal nature; and even less can self-knowledge (and, with it, a faculty of thought) be attributed to it. It is a conceptual impossibility that matter can reason and think. The heterogeneity is thus conceptual, not essential. This explains the alliance between Pascal and Montaigne against Descartes: the human being conceives neither what the body is nor what the mind is, nor what he is as a composite of these two natures.

With this ultimate divergence from Descartes, Pascal steps back from his devotion to Cartesian mechanism. Descartes is mistaken in his attempt to deepen science. This expression, “to probe science too deeply”, has two meanings. First, it means to pursue science to the detriment of those questions that one ought to pursue because they pertain to one’s salvation.[6] But it also means, above all, to pursue science to the detriment of science itself, in so far as it possesses a certitude proceeding only, according to the opuscule *De l’esprit géométrique*, from the definitional and the propositional imperatives of mathematical method—a certitude that endangers equally the vision of Montaigne (who complains about the absence of a foundation for science) and the vision of Descartes (who is working to provide science with just that foundation whose absence Montaigne laments).

With respect to Montaigne, Pascal says in the *Entretien avec M. de Sacy*[7] that he examines the sciences so deeply that he undermines their certitude, just as he undermines one’s certitude that one is not dreaming. And Pascal thinks that Descartes takes up the challenge issued by Montaigne: he makes use of doubt—a doubt that touches not only the sciences but, more profoundly, the essence of the true and the good—to turn doubt against itself.

The first stage of this turnaround is the *cogito*; the second stage is divine veracity. With the *cogito*, the human mind affirms a proposition that it finds absolutely indubitable; with divine veracity, the human mind can now abandon the hypothesis according to which what is indubitable may be true only for itself, since what is absolutely true exists in God, as Montaigne claims, and therefore only faith and revealed knowledge can provide a glimpse of it. Pascal admirably perceives the shadow of Montaigne in Descartes. The God of the Third Meditation, which is God the creator of the eternal truths in the 1630 correspondence with Mersenne (as the conclusion of the Fourth Meditation and the beginning

of the Sixth attest), is the God whose innate idea in the human mind confirms that God can actually do more than what is intelligible to that mind, but nothing that is (p. 587) repugnant to what is intelligible to it. (God can do everything that, according to human conception, is doable, but cannot do that which, because it is conceptually impossible, is not doable). What Descartes envisioned (with the *cogito*, followed by divine veracity) is made clear right at the outset: to remove, once and for all and from their foundations, all of his initially shaky acquisitions and begin again from an unassailable foundation in such a way that these acquisitions are henceforth perfectly stable. This, then, is what it means to say that Descartes "probes science too deeply".

But why was Descartes wrong to want to respond to Montaigne in this way? To answer this, we need to remember that Pascal dissociates the question of truth as it is posed in science and the question of truth as it concerns metaphysics. Descartes and Montaigne were both wrong not to take this dissociation into account. Metaphysics, which seeks a knowledge of the essences of things, depends on the mind alone. Science, on the other hand, which does not seek a knowledge of the essences of things—which cannot be known by a being composed of two natures, such as the human being—depends not on the mind alone, but on the mind in a body which itself exists in the world of bodies:

> Our soul is cast into the body where it finds number, time, dimensions; it reasons about these things and calls them natural, or necessary, and can believe nothing else. (L/K 418)
>
> Who then can doubt that our soul, being accustomed to see number, space,
>
> movement, believes in this and nothing else? (L/K 419)

Space, time, number, and movement are the four objects of mathematics. Mathematics is not about the essence of corporeal things, but rather those notions that structure the all-too-human apprehension of the universe of bodies through sensation and reason. And physics is only that very human apprehension—again, through sensation and reason—of the bodies making up the universe of bodies, an apprehension that does not fully embrace that universe but that sets out progressively from the milieu that the human being occupies within it. To the extent that its apprehension through sensation increases, so does its apprehension through reason:

> Our intelligence occupies the same rank in the order of intellect [Pascal says "*dans l'ordre des choses intelligibles*"] as our body in the whole range of nature. (L/K 199)

Reason's explanations need to be improved according to the effects whose causes they identify, and so, the consequences according to the principles (since the principles here are the effects that experience reveals and the consequences are the causes or reasons for these effects), as Pascal explains in the preface to the *Traité du vide*.

However, if there is to be a dissociation between science and metaphysics, one has no right to demand from the principles of science what Descartes asks of them, namely that they be indubitable and absolutely primary, which is what Descartes expects of the metaphysical principles from which the principles of science derive. According to *De l'esprit géométrique*, the principles of science are certain and primary to the extent that they need (p. 588) to be, given the two imperatives—definitional and propositional—which all scientific method must obey. Thus, one should not be surprised that Pascal's attention is focused on Descartes's *Principles of Philosophy*, for it is only in this work that we discover how, for Descartes, the principles of science are supposed to derive from metaphysical principles.

Philosophy is conceived in the *Principles* as organic (like a body) only by being conceived as deductive (like a tree). According to the Letter-Preface, the wisdom that philosophy seeks to attain is a perfect knowledge of everything that is humanly knowable, for practical ends (medical, technical, and moral). Thus, in order for knowledge to be perfect within its proper limits, it must be deduced from principles which have to be indubitable and absolutely primary. It is telling that Descartes does not limit these principles of knowledge to the *cogito*. Among them he includes the explication of the principal attributes of God and of all innate ideas, that is, the foundations that are indispensible for physics. This science is rooted in the knowledge of the omnipotence and immutability of God, as we see in the letter to Mersenne of April 15, 1630 (on the creation of the eternal truths), and in the knowledge of the essence of body as a substance defined by extension and modified by "figure and motion". The concepts of the human mind are thus given an ontological value; and if the essence of body is extension, it follows that, without extension, body can neither be nor be conceived, just as, reciprocally, extension can neither be nor be conceived without body. Mathematical knowledge is a knowledge of possible bodies, and physical knowledge is the knowledge of real bodies,[8] which means that Cartesian physics is a science of the real as well as of the possible.[9] Whence the raillery attributed to Pascal, that such a physics is "a romance of nature".[10] And it is by virtue of this grounding of physics in metaphysics that Descartes, as dogmatically as Aristotle, eliminates the possibility of a vacuum in nature.[11] A vacuum is declared impossible because extension can neither be nor be conceived without body, and, in nature, without an existing body. A space alleged to be empty because one does not detect anything by the senses is still necessarily filled with "fine matter".

For Pascal, only experimental verification can allow one to determine whether, given what we call "body", an apparently empty space is or is not filled with some body. Scientific method does not imply any knowledge of the essence of body, but only a nominal definition of 'body' (given that we have no meaning for that term that is, by nature, sufficiently certain) and a demonstration of a proposed hypothesis that explains the phenomena (in this case, a disconfirmation that any body is present in the allegedly empty space). If experiment cannot decide between two contradictory theses—"there is a space empty of any body", "there is a space that is not empty of any body"—then the two theses are only hypotheses, each of which is still doubtful.[12] (This is not to say, however, that Descartes (p. 589) entirely removes experiment from physics. After all, causes must explain all the

observable effects; and, in order to isolate their real cause from deductively possible causes, crucial experiments must be performed, ones that allow us to arrive at causes through effects).[13]

Pascal draws a connection between Descartes's physics and Descartes's God. A God who eminently contains all that is true in the human mind's true ideas is not the God of Christianity; and such a conception of God misleads a scientist who believes that he cannot establish the foundations of science without Him. The principles of science, which are neither indubitable nor absolutely primary, do not need foundations. Their certitude is not due to their indubitable character. Doubt is a tool of reason, whereby what is indubitable is the naturalness of reason itself, which cannot doubt its doubting—that is, ultimately, it cannot doubt itself. Contrary to Descartes, Pascal submits to the jurisdiction of reason only the certainty of consequences, not that of principles; and to withdraw the certainty of principles from the jurisdiction of reason is to deny that their certitude can be assimilated to their indubitable character.

On the other hand, as soon as one initiates the process of doubt, one irremediably tarnishes the certainty of principles. Whether it is a matter of the natural certainty that belongs to what is indefinable, or the natural certainty of indemonstrables, this certainty is not discursive, such as the certainty that belongs to defined terms and demonstrated propositions. In attacking the Pyrrhonians, who demand proofs for what is indefinable and indemonstrable,[14] Pascal also attacks the dogmatists, who play by the rules of the Pyrrhonians when they conceive the certain as that which is immune to doubt.[15] The certainty of indefinables is linguistic. Given the meaning of the word 'movement', and the meaning is given in a language in which all words have meaning only in relation to others, anyone who has experienced the displacement of bodies turns his mind to this same object of sensation and reason. The certainty of indemonstrables is psycho-physical. One does not demonstrate that space has three dimensions or that the set of numbers is infinite because, without accepting these principles, there can be no demonstration of the relations that exist between bodies in the universe of bodies to which all human beings are related through their own bodies. Neither one nor the other of these two certainties is rational. Pascal uses the term 'heart' to refer to the non-rational ground on which reason bases its discourse. Through the heart, the human mind is naturally inclined to believe those principles whose certainty does not derive from reason.

And the scientific principles whose certainty is not a function of their indubitable character are no longer absolutely primary. As Pascal indicates in *De l'esprit géométrique*, nature is only a limit for discursiveness. He provides two criteria for knowing when one must stop the definition of terms and the demonstration of propositions: natural clarity and discursive circularity. One must give up defining terms whose meaning is clear without definition, and whose definition ultimately presupposes that meaning. Similarly, one must give up demonstrating propositions whose truth is evident without demonstration and whose demonstration ultimately presupposes their truth. Unlike the (p. 590) Cartesian conception of science, the Pascalian conception of science thus sees it as a kind of middle ground—between not defining anything and defining everything, between not demon-

strating anything and demonstrating everything—and as a milieu proportionate to the intermediate situation of the human being in the universe of bodies, but not to either the universe itself in its infinite grandeur and smallness or to the essence of the least body of this universe.[16] It is as sumptuous, and presumptuous, to hope to arrive at a perfect knowledge of everything that is humanly knowable, as it is to want to arrive at a knowledge of scientific principles that are indubitable and absolutely primary. Science cannot be fixed because it cannot be fully settled. At the same time, it must be confessed that nothing is more contrary to human desire than this milieu that deprives one of any absolutely fixed position:

> We burn with desire to find a firm footing, an ultimate, lasting base on which to build a tower rising up to infinity, but our whole foundation cracks and the earth opens up into the depth of the abyss. (L/K 199)

And yet this desire that, in its relativity, science cannot satisfy becomes comprehensible as soon as one realizes that, through thought, the human being embraces the universe that he cannot embrace through reason.

3. Is it Sufficient to Say that the Human Being is not an Animal?

In dissociating the question of truth as it arises in science and the question of truth as it arises in metaphysics, Pascal does not intend to deprive the human being of the capacity to apprehend the true and the good in their essence. He means only to deprive him of the capacity to apprehend these on his own, independently of God. The human being is incapable of apprehending the true and the good in their essence as long as he thinks of himself as God and relates everything to himself instead of to God. Because he was created with a capacity of God, there is always within him a trace or an imprint of the true and the good. But because he was born opposing God, usurping His place, this trace or imprint, cut off from its true object, is filled only with fantastic images of the true and the good. Thus, the human being must first know himself in his fallen state in order to restore his metaphysical knowledge.[17] But to know himself in the duality of his nature, even while ignorant of the explanation of such a duality—since this explanation is found only in Christian revelation—is the vocation of thought. The human being's dignity resides in thought, that is, the knowledge of the self and of God, a knowledge whose condition is his own spiritual nature. The fall of human nature resides in thought's own abdication of thought.

(p. 591) This is why it is important to give credit to Descartes at least for having established a difference between human being and animal that is a matter not of degree but of nature. All the actions of animals can be explained as those of automatons, that is, in purely mechanistic terms. An animal does not need thought to have sensation and imagination; for sensation it needs only corporeal organs, and for imagination it needs only corporeal traces or imprints. Nor does an animal need free will to determine itself to do

what it does; it needs only bodily impulses. By contrast, a human being is not a body without a mind. Even if he requires bodily organs for sensing and bodily traces or imprints for imagining, it is neither by his bodily organs that he senses nor by those corporeal traces or imprints that he imagines. All of this occurs through thought, which alone can represent to itself the bodies that he senses and imagines. Even if he is subject to corporeal impulses, it is up to him to consent to them (or not) through his free will.[18] Montaigne was thus wrong to claim that there is a greater distance between one human being and another than between an animal and a human being,[19] and Descartes was entirely correct to claim, on the contrary, that there is no animal, however well endowed it may be, that can equal, on this matter, any human being, however deficient he may be.[20] Descartes never affirms that animals are machines. What he says is that the automaton model is applicable to them if one is assessing them on the basis of external appearances, while it is not applicable to other human beings when they are assessed externally, nor to oneself on the basis of internal evidence. And he explains why he is inclined to apply this model to animals by invoking a moral and theological argument: if human beings do not have an immaterial soul or mind, then nothing can survive the disintegration of their bodies, and thus they would have nothing to fear or hope for after this life. On the other hand, if animals have an immaterial soul or mind, this soul or mind would have to survive the disintegration of the body, and thus one would have to grant that they have—even those that have only vital motions—the same destiny after death that human beings have.

Pascal subscribes to the automatization of animals.[21] He also subscribes to the dualism of corporeal nature and spiritual nature in the human being, if only because it is inconceivable to him that there is any other way to find the source of the activities of reason and thought, on the one hand, and, on the other hand, the activity of a will capable of taming the passions.[22] As with Descartes, it is the mind and not the body that, in the human being, senses and imagines.[23] Thus, if one abstracts from Pascal's rejection of the method of doubt, of the *cogito*, of the parallelism between mind whose essence is thought and body whose essence is extension—indeed, his retraction of the entire project of the (p. 592) *Meditations*, which leads him to rejoin Montaigne in claiming that one knows neither what body is nor what mind is, since we apprehend only their properties—he seems at least to share the Cartesian account of the difference between human being and animal. The human being thinks; without the mind, he would not be a human being.[24] Animals do not think, although they do sense, imagine, and will with their organic bodies. The human being is thus not an animal.[25]

This conclusion, however, needs to be qualified. For Pascal complains that Descartes does not ask why human beings, who are not animals, nevertheless resemble animals[26]—why, although they have thought, they abandon it; and why, having free will, they abdicate it. Descartes only presents the condition of human grandeur by exhibiting its spiritual nature, but without presenting the dialectic of grandeur and misery that affects this spiritual nature.[27] It is not enough simply to have thought. The vocation of thought, in the human being who has it and has it in an essential manner, is to allow him to know the duality of his nature, not only as body and mind but also as fallen mind, both capable and incapable of thinking of itself and of God—that is, at one and the same time, grand and miser-

able. In this sense, the vocation of thought is, for Pascal, to decipher desire and its internal contradiction, with the human being both incapable of apprehending the true and the good in their essence (contrary to Descartes) and incapable of being content with his fantastic images (contrary to Montaigne). This illuminates the whole political aspect of Pascal's work.

That the human being is endowed with mind is only the condition of a grandeur that resides in thought as an activity of the mind by which he thinks of himself and of God. But this being who, through thought, thinks of himself and of God is the being who, setting himself in opposition to God and to himself, wants no longer to think either of himself or of God, but rather of everything that prevents him from thinking of himself and of God—that is, from thinking of his misery as a privation of his grandeur. In order for the human being to think, he must recognize that he is a "dispossessed king".[28] Everything is done to make sure that the king is never in a condition to think.[29] The theme of "diversion" [divertissement] is connected with that of thought. Only a thinking being is a being diverting itself so as not to think.[30] Diversion, however, is not distraction. Because he eliminates any consideration of original sin, Descartes envisions only a natural laziness of the human mind, which can hardly stay concentrated on the same object. For this reason, evidence quickly evaporates. This is why he needs to be assured of the objective and permanent truth of evidence whose truth is, taken by itself, merely subjective and momentary. The same thing that applies to the evidence of a principle holds, as well, for the conclusion of a demonstration: it is lost when all the links of the demonstrative chain are no longer present to the mind. This is why one must have recourse to divine veracity, (p. 593) which guarantees that the object of a clear and distinct apprehension is definitively true. Pascal uses Descartes against himself when he remarks that the proofs for the existence of God that employ complex reasoning will influence only those who are prepared to follow it, and will influence them only as long as it is actually affecting them, with the result that one hour later they are already no longer convinced.[31] But if Pascal takes Cartesian distraction into account, Descartes does not take account of Pascalian diversion. In diversion, the human being who is not an animal seeks to relinquish the thinking by which he has a dignity that elevates him infinitely above animals. He seeks to reduce himself to the level of animals, to become a brute. Diversion consists, in effect, in occupying the mind with activities that excite it, that carry it away and stimulate it—that take it outside itself. It is testimony to the ambivalence of thought, grand while it is thinking, miserable when it thinks of something other than what it ought to be thinking about:

> Man is obviously made for thinking. Therein lies all his dignity and his merit; and his whole duty is to think as he ought. Now the order of thought is to begin with ourselves, and with our author and our end. Now what does the world think about? Never about that, but about dancing, playing the lute, singing, writing verse, tilting at the ring, etc., and fighting, becoming king, without thinking what it means to be a king or to be a man. (L/K 620)

> *Thought*. All man's dignity consists in thought, but what is this thought? How silly it is! Thought, then, is admirable and incomparable by its very nature. It must have had strange faults to have become worthy of contempt, but it does have such faults that nothing is more ridiculous. How great it is by its nature, how vile by its faults!(L/K 756)

Thought is grand only when the human being, through thought, knows that he is deprived of his grandeur: miserable. Pascal expresses this fact with this literal formula: "Man's greatness is great from knowing he is wretched."[32] Without the God from whom he has his being, man is a being emptied of his being; a being who, relating everything to himself instead of to God, derealizes everything to which he is related. He experiences this misery in an abandonment to the nature which causes him to be born and to die, in a concession to that milieu to which he is condemned, within the universe of bodies, by a body promised to death.

The human being who recognizes his misery questions the contingency of his existence: why is there this time gap between two eternities and this portion of space between two infinities rather than any other?[33] In his immersion within nature, he is minuscule, like a point or an instant that space and time devour; he is fragile, like a reed bent by the power of other bodies. And yet, being conscious of that which reduces him to practically nothing, he surpasses all of nature that knows nothing of all this.

> Through space the universe grasps me and swallows me up like a speck; through thought I grasp it. (L/K 113)

(p. 594) It is not by expanding his space, time, or power that the human being sustains himself, but rather by thinking or by taking stock of his misery.[34] Like Descartes, Pascal claims that the human being is not just a finite and contingent being but a being who knows himself as such. With Descartes, this consciousness belongs to the mind in so far as it contains the idea of God. Being finite and contingent, it knows that it is not itself the mind that is God. With Pascal, this consciousness belongs to the mind in so far as it has within itself the capacity of God and a grasp of nature—not, however, without being subject to the body, which is itself subject to nature. Being finite and contingent, the mind perceives the infinite and necessary being that it is not only through this nature from which it certainly does not derive its being but merely the multiple physical conditions of its being. It is in that nature, and not in God, that the human being conscious of his misery sees a necessary, eternal, and infinite being.

> I feel that it is possible that I might never have existed, for my self consists in my thought; therefore I who think would never have been if my mother had been killed before I had come to life; therefore I am not a necessary being. I am not eternal or infinite either, but I can see that there is in nature a being who is necessary, eternal, and infinite. (L/K 135)

We can see how far this text is from the second version of the causal proof for God's existence in the Third Meditation. For Descartes, the creation and conservation of the mind allows for the demonstration of the existence of God who is the cause of Himself. For Pascal, the thought that the animation of the body by the mind depends on a multitude of physical causes makes the human being feel, by contrast with the existence of a nature that is the source of all these causes, the contingency of the existence of that mind wherein lies his being as a human.

With the consciousness of his misery, the human being does not know God immediately; he knows only the duality of his own nature. And only Christian revelation resolves the enigma of this duality, with the dogma of original sin and redemption.[35] This is why Pascal implicitly accuses Descartes of the same error that all philosophers make who believe they can know and love God outside of Jesus Christ.[36] Their attempts to prove God's existence are thus useless. It is not God's existence that needs to be proven; rather, it is the truth of Christianity. One thereby shows those who set reason against Christianity that their attitude is not commanded by reason but by the passions arising from concupiscence,[37] and that the human remedy for these passions belongs to the same order as they do, although in a contrary sense: by "the machine".[38] Since in making himself into God the human being makes himself a beast, there should be no hesitation in claiming that "becoming a beast" [l'abêtissement] is both penal and medicinal, being that through which one becomes accustomed to religion.[39] Pascal here borrows a model (p. 595) of training from Descartes as a kind of correction of natural inclination, and transfers it from animal to human being.[40] God converts the heart through efficacious grace, but the human being has the power to reverse his prejudices against religion through a simple mechanism.[41] The demonstrations of Christianity are addressed to the mind, but they are historical demonstrations, demonstration by reality. The proofs for the existence of God, however, are metaphysical proofs, proof by ideas. Thus their impotence, which is not extrinsic and curable "by the machine" but intrinsic and incurable. They convince only the philosophers who, forging them and understanding them, thereby boast of the superiority of their minds; and the proofs convince them only to the extent that they can take pride in them, for as soon as this is not the case, the natural distraction of the mind described by Descartes dissipates their prestige and the philosophers are forced to acknowledge that we only solidly believe that which persuades a human being as a whole, in his body and his mind.[42] However, even if Pascal includes Descartes in the category of deists, whom he declares to be no less contrary to Christianity than atheists,[43] he never directly attacks the Cartesian proofs for the existence of God. It is always the "Five Ways" of Thomas Aquinas, as well as the Augustinian proof from *On Free Will*, at which he takes aim—that is, the arsenal of Christian theologians!

4. Conclusion: Pascal and Arnauld vs. Descartes

It was necessary to cover all this ground in order to illuminate, retrospectively, the limitations of Pascal's homage to Descartes. Like Montaigne,[44] Descartes was accused of putting aside faith and the God of faith. However, while the former maneuver allows rea-

son to wander while left to its own devices, the latter move is a boast of having attained through reason the knowledge of the true God—the God whose essence is knowable through its idea that is inherent in the idea that the human mind has of itself—and, through the knowledge of the true God, a perfect knowledge of everything that is humanly knowable.

This God is not the God of Jesus Christ,[45] the sole God in whose light, according to Pascal, the human mind can explain human nature and everything whose essence is knowable only through it. Pascal rises to Descartes's level when he wants reason to find in Jesus Christ—God of faith—the principle of an entire philosophy. It is Arnauld who is engulfed in the Cartesian separation between philosophy and theology, and so speaks as a philosopher with philosophers and as a theologian with theologians, allowing himself (p. 596) in the Fourth Objections to discuss freely and technically the theses of a philosopher who seems to him to offer sufficient guarantees of his religious orthodoxy. Despite his philosophical rigor, Arnauld remains an amateur, while Pascal, despite his expeditious style, offers, both with Descartes and against him, a true philosophy.

Translated by Steven Nadler

Abbreviations

K
= Blaise Pascal, *Pensées*, ed. and trans. A. J. Krailsheimer. Harmondsworth: Penguin Classics, 1966; 2nd edn. 1995.
L
= Blaise Pascal, *Œuvres complètes*, ed. Louis Lafuma. Paris: Éditions du Seuil, 1963.

The same numbering for the *Pensées* appears in both the Lafuma and Krailsheimer editions.

Notes:

([1]) L 357–8.

([2]) L/K 930 and L/K 776.

([3]) See *Principles of Philosophy*, Letter-Preface, AT IXB.1–20/CSM I.179–90.

([4]) L/K 199.

([5]) On these Cartesian ideas, see especially the two letters to Elisabeth of May 21 and June 28, 1643, AT III.663–8 and 690–5/CSM III.217–20 and 226–9.

([6]) L/K 164.

([7]) L 294.

([8]) See *Conversations with Burman* on the Fifth Meditation, AT V.160/CSM III.343.

([9]) See the three versions of the "fable of the world": in chs. 6 and 7 of *The World*, AT XI. 31–48/CSM I.90–8; in *Discourse on Method* V, AT VI.40–5/CSM I.131–4; and in *Principles of Philosophy* III.42–7, AT IXB.122–6/CSM I.255–8.

([10]) L 1008/K, sayings attributed to Pascal, IX.

([11]) See *Principles of Philosophy* II.16, AT IXB.71–2/CSM I.229–30.

([12]) See the letter to Father Noël of October 29, 1647 (L 202).

([13]) See *Discourse on Method* VI, AT VI.63–5/CSM I.143–4.

([14]) L/K 109 and L/K 110.

([15]) L/K 131.

([16]) L/K 199.

([17]) L/K 131.

([18]) See *Principles of Philosophy* I.37, AT IXB.40–1/CSM I.205.

([19]) See *Essais*, I.42 and II.12.

([20]) See *Discourse on Method* V, AT VI.56–60/CSM I.139–41 and the letter to Newcastle of November 23, 1646, AT IV.573–6/CSM III.302–4.

([21]) L/K 105 and L/K 107. L/K 741 does not imply either that the arithmetical machine thinks, although it produces effects similar to the effects of thought, or that animals have free will, although, contrary to a human-made machine, they have a will—namely, the will of the maker who makes them move.

([22]) L/K 199 and L/K 115.

([23]) L/K 108. L/K 686 does not say that it is the body that senses, but that, without the motions of the body, the mind would never sense. Pascal marvels at the gap there is between sensation and the coarseness of its occasional cause.

([24]) L/K 111.

([25]) See the Cartesian critique of the definition of the human being as a "rational animal" in the Second Meditation, AT IXA.20/CSM II.17 and in *The Search for Truth*, AT X.515–16/CSM II.410.

([26]) L/K 131.

([27]) L/K 122.

([28]) L/K 116 and L/K 117.

([29]) L/K 137.

([30]) Thus the underlining for almost all the fragments in the bundle “Diversion”: L/K 133, L/K 134, L/K 136, L/K 137, L/K 138, L/K 139.

([31]) L/K 190.

([32]) L/K 114.

([33]) L/K 68 and L/K 194.

([34]) L/K 113 and L/K 200.

([35]) L/K 131 and L/K 149.

([36]) See the bundle “Excellence of this means of proving God”.

([37]) L/K 175.

([38]) L/K 5, L/K 7, L/K 11.

([39]) L/K 418.

([40]) *The Passions of the Soul* I.50, AT XI.368–70/CSM I.348.

([41]) Whence the three means of belief catalogued at L/K 808.

([42]) L/K 821.

([43]) L/K 449.

([44]) See the *Entretien avec M. de Sacy*: L 293 and 295.

([45]) See the *Memorial* (L/K 913).

Hélène Bouchilloux

University of Lorraine

Gassendi as Critic of Descartes

Antonia Lolordo

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Abstract and Keywords

Pierre Gassendi is best known today as a critic of Descartes. This chapter surveys Gassendi's Objections to the *Meditations*, Descartes's Reply, and Gassendi's Counter-Objections in the *Disquisitio Metaphysica*. The central theme of this debate is methodology. Gassendi thinks that the methodology of the *Meditations* is hopeless: nobody can genuinely clear their mind of preconceived opinions, and if they did, they would not have discovered new foundations for the sciences, but instead be trapped in a state of suspended judgment. Gassendi's critique is not entirely fair to Descartes, and Descartes's reply fails to take seriously the main points of the critique.

Keywords: Pierre Gassendi, clear and distinct perception, essence, methodology, real distinction

(p. 597) 1. The Fifth Objections and its Sequels

PIERRE Gassendi is best known today as a critic of Descartes. He would probably have been surprised by this: he was not impressed with Descartes's *Meditations*, and he had no reason to suspect that Descartes's reputation would so far eclipse his own. This Handbook concerns Cartesianism and its critics, but Gassendi likely did not expect there to be any such thing as Cartesianism. He saw himself as discussing a good mathematician's unfortunate decision to try his hand at metaphysics, not the founding text of a system and movement.

Gassendi was 48 when Mersenne asked him to write a set of Objections to be published, along with Descartes's Replies, in the first edition of the *Meditations*. By that time, he was already fairly well known. He had published an attack on the Scholastics, the *Exercitationes paradoxicae adversus Aristoteleos* (*Exercises against the Aristotelians in the form of paradoxes*), which was widely read and widely admired.[1] He had also published an attack on the chymist Robert Fludd, which Mersenne had asked him to write, and two works on astronomy.[2] And in the few years between the Objections and the much longer 1644 Counter-Objections, Gassendi published several more things: a biography (p. 598) of

his late patron, the humanist Peiresc; a defense of Galilean relativity, *De motu impresso a motore translato* [*On the motion impressed by a moved mover*]; and another work of astronomy.[3]

Gassendi and Descartes had a fair amount in common. They knew each other, both personally and philosophically: Gassendi admired Descartes's *Geometry* (Gassendi 1658: III. 275b) and Descartes admired Gassendi's astronomical observations (AT I.113/CSMK 18). They were both associated with the Mersenne circle, and—like Mersenne himself—they were both great admirers of Galileo.[4] And they were both keen critics of Aristotelianism, eager to replace it with something else.

Along with these commonalities, there were also a number of significant differences. Although both philosophers agreed that Aristotelianism should be abandoned, they did not agree about what it should be replaced with. Descartes advocated his own new system, independent of any ancient model, whereas Gassendi opted for a version of Epicureanism. Of course, Gassendi's version of Epicureanism involved a great deal of revision; the Epicurean accounts of God, providence, death, and the like were excised and replaced by something more acceptable to the Catholic Church. Thus, he was attempting to do for Epicurus something like what Aquinas did for Aristotle.[5]

A second, related difference concerns the two philosophers' general attitude towards the ancients. Descartes obscures the influence of history on his work; Gassendi celebrates it. He explains the range of options on offer in the history of philosophy for every issue he considers—making a point, however, of leaving out all the Aristotelian options. Gassendi's main work, the enormous, posthumously published *Syntagma Philosophicum*, often looks like a tissue of quotations woven together. Thus Descartes's erasure of history pains him. He spends a great deal of time, for example, explaining the importance of the distinction the ancient skeptics drew between the appearances of things and their innermost nature, a distinction Descartes ignores in the First Meditation (Gassendi 1658: III.286a).

Finally, there was a significant difference between the philosophers' social positions. Throughout his life, Gassendi was dependent upon patronage networks in a way that Descartes never was. It's not clear how much this affected the content of their views, but it certainly affected the way those views were presented and the way the two philosophers interacted with their peers. Gassendi's work could easily have been seen as theologically suspect, even dangerous. For instance, his commitment to Copernicanism was obvious, from the 1620s to the end of his life. And although he always insisted that he submitted (p. 599) to the authority of the Church on this question, he was also extremely reluctant to accept that the Pope himself had condemned Galileo.[6] Despite this, Gassendi never had any real trouble with the authorities. He made an effort to get along with the establishment and to be respected and rewarded by it, and he was very successful in this. This could hardly be further from Descartes.

The rancor of the Fifth Objections and Replies cannot, however, be blamed entirely—or even mainly—on Descartes. Gassendi's Objections are unsympathetic, and it is not surprising that they enraged Descartes. Gassendi pokes fun at the meditator's description of

himself as “in a strict sense only a thing that thinks” (AT VII.27/CSM II.18) and as a result, throughout the Objections, he addresses Descartes “O Mind” (AT VII.265/CSM II. 185/Gassendi 1658: III.298a). In turn, Descartes—who thinks that Gassendi’s mind is “so immersed in the senses that [it shrinks] from all metaphysical thoughts” (AT VII.348/CSM II.241)—addresses Gassendi “O Flesh” (AT VII.352/CSM II.244). He complains that Gassendi “seem[s] to misunderstand completely what the use of rational argument involves” (AT VII.354/CSM II.245) and describes him as “employ[ing] rhetorical tricks rather than reasoning” (AT VII.350/CSM II.243). Presumably Descartes knew that Gassendi would be offended: he asked Mersenne to publish the Objections right away, explaining that they “contain so little good argument that I doubt if he will want to allow them to be printed, once he has seen my reply” (letter of June 23, 1641: AT III.384/CSMK 184).

Gassendi *was* offended, and in response to Descartes’s Replies he wrote a lengthy set of Counter-Objections which were published, along with the original Objections and Descartes’s Replies, as the *Disquisitio Metaphysica*. There, in 140 folio pages, Gassendi explains how Descartes has misunderstood or failed to adequately respond to various points. Gassendi’s opinion of Descartes had not improved since the original Objections: at one point, he says that he is disappointed that a skilled mathematician like Descartes “paraded such spurious arguments as demonstrations” (Gassendi 1658: III.275b).

Descartes apparently did not think much of the *Disquisitio*, and he did not reply directly. When the first French edition of the *Meditations* was published in 1647, he asked for Gassendi’s Objections to be left out. In their place, he asked a group of his friends to summarize the main points of the *Disquisitio*. Descartes then wrote a brief letter, explaining that he had “not been able to discover a single objection which those who have some slight understanding of my *Meditations* will not, in my view, be able to answer quite easily without any help from me” (AT IXA.199/CSM II.269). Claude Clerselier, who handled the publication, did not do quite what Descartes asked: he published Descartes’s letter (now called the “Letter to Clerselier”) in place of the Fifth Set of Objections and Replies, but then included them as an appendix anyway. Here the exchange stopped.[7]

(p. 600) 2. Overview of the Debate

The Fifth Objections opens with misleading modesty. Gassendi tells us that his aim is not to refute Descartes, but “simply to uncover the reasons that gave rise to [his] doubts” about Descartes’s arguments, and that his worries “do not concern the actual results … but merely the method and validity of the proof” (AT VII.257/CSM II.179/Gassendi 1658: III.273b). This is only partly true. Gassendi agrees with the official conclusions of the *Meditations*, that God exists and that the soul is immortal, and to a certain extent he is playing devil’s advocate rather than presenting his own views. For instance, he proposes an alternative procedure to discover the essence of the mind—a chemical investigation (AT VII.276/CSM II.193/Gassendi 1658: III.311a). But this is not the procedure he himself uses elsewhere, and he is not the sort of materialist this remark might suggest.[8] However,

Gassendi also disagrees with a number of Descartes's conclusions, for instance those concerning the structure of space, the nature of life, the distinction between intellect and imagination, the freedom of the will, and more.

The Fifth Objections touch on virtually every point in the *Meditations*, but here I focus on what I see as the main line of argument, which begins with a consideration of methodology.[9] Gassendi describes the *Meditations* as Descartes's logic and asserts that the main principle of Descartes's logic is what we now call the truth rule, that is, the principle *everything I clearly and distinctly perceive is true* (Gassendi 1658: I.65b). He argues that because of this reliance on clear and distinct perception, Descartes is trapped in "the prison of [his] intellect", unable to make contact with "the theater of nature" (Gassendi 1658: III.382a). For, he argues, clear and distinct perception is useless as a criterion of truth—in part because the First Meditation's use of skeptical scenarios to help us isolate our clear and distinct perceptions fails. This, Gassendi argues, leaves us unable to determine which of our ideas are innate. Hence, we will be unable to identify any true and immutable natures. And as a result, Descartes's arguments for the existence of God fail, as does his argument for the real distinction between mind and body.

3. Clear and Distinct Perception

How do I know, in any given case, if I am perceiving things clearly and distinctly? Are there perceptions that are only apparently clear and distinct? Or is clarity and distinctness its own mark, with the result that I cannot possibly be wrong about whether I am perceiving something clearly and distinctly?

(p. 601) Gassendi poses these questions as a dilemma for Descartes. Suppose that there is a distinction between genuinely clear and distinct perceptions and those that merely appear clear and distinct. Then the truth rule cannot be useful unless I first have a method for determining which of my perceptions are *really* clear and distinct:

> What you should be working on is not so much confirming this rule, which makes it so easy for us to take the false for the true, but instead proposing a method to guide us and teach us when we are mistaken and when not, in the cases where we think we clearly and distinctly perceive something. (AT VII.279/CSM II.194–5/ Gassendi 1658: III.315a)

On the other hand, suppose that it's impossible to be wrong about whether you're perceiving something clearly and distinctly. Then, Gassendi argues, all clear and distinct perceptions cannot be true, for different people—all of whom are honest, all of whom have thought about the matter carefully—report that they perceive different, incompatible things clearly and distinctly (AT VII.277/CSM II.193/Gassendi 1658: III.315a). Gassendi recognizes that someone might doubt the veracity of such reports, but he thinks such doubts can be dismissed. If clear and distinct perception cannot be misidentified then the only way reports of clear and distinct perception can be false is if the reporter is simply lying, and in some cases we can rule out that possibility: "the fact that men go to meet

death for the sake of some opinion seems to be a perspicuous argument that they perceive it clearly and distinctly" (Gassendi 1658: III.317a). Moreover, Gassendi reports, he himself has experienced conflict between clear and distinct perceptions held at different times. As a child, he clearly and distinctly perceived that if two lines kept approaching each other, they would eventually meet; later he learned about asymptotes and came to perceive the opposite; still later, he adopted a form of skepticism about mathematics and abandoned all such beliefs (AT VII.278/CSM II.194/ Gassendi 1658: III.314b).

Descartes responds with a third option. Clear and distinct perception needs no criterion, but none of the perceptions Gassendi discusses are genuinely clear and distinct. Gassendi keeps asking for a method he can use to tell whether he's really perceiving something clearly and distinctly, but, Descartes says,

> I maintain that I carefully provided such a method in the appropriate place, where I first eliminated all preconceived opinions and afterwards listed all my principal ideas, distinguishing those which were clear from those which were obscure or confused. (AT VII.361–2/CSM II.250)

Only people who have meditated properly are capable of having clear and distinct perceptions, and for them, clear and distinct perceptions are unmistakable. Gassendi advances examples that are not genuinely clear and distinct because he is still mired in the senses: he has never experienced genuine clarity and distinctness.

In response, Gassendi claims that it is impossible to free yourself from preconceived opinions using the tools Descartes provides, namely the three skeptical hypotheses (p. 602) of the First Meditation. Thus, the debate shifts from clear and distinct perception to the use and abuse of skepticism.

Ancient skepticism was important for Gassendi.[10] In the *Exercitationes*, he explained that the Academics and Pyrrhonians seemed to him to be the most pleasing philosophers (Gassendi 1658: III.99, no columns), and he used a number of arguments found in Sextus Empiricus's *Outlines of Pyrrhonism* to challenge Aristotelianism. Many of these are versions of the Ten Modes, which were strategies designed to show that "the judgments of different men concerning the things that are perceived by the senses are very different" (Gassendi 1658: III.197b) and even that one man will make different judgments at different times and in different circumstances. (This is, of course, the strategy Gassendi used in attacking the truth rule). It's important here that there is actual disagreement. I am brought to suspend judgment by considering the fact that the honey tastes sweet to me but bitter to you. This is, as a matter of fact, what tends to happen to human beings who contemplate the great variety of differing appearances.

The first level of doubt in the First Meditation—the deceiving senses—more or less fits this pattern. The next two levels, however, do not. I may be unable to rule out the possibility that I am being deceived by an evil demon, but it does not *appear to me* that I am being deceived by an evil demon. Because of this, Gassendi thinks, the global skeptical

hypotheses of the First Meditation produce at best a “merely verbal” doubt (Gassendi 1658: III.280b). They will not bring about universal suspension of judgment.

Gassendi thinks that Descartes has failed to understand how skepticism works. He assumes, because of his own emphasis on the need for ancient models, that Descartes is trying to do something like what the ancient skeptics did. But he also has theoretical reasons for thinking that the First Meditation must produce universal suspension of judgment in order for Descartes’s method to have a chance. For, he argues, unless we suspend all judgments we cannot be sure that we are free from the pernicious influence of previously acquired opinions.

In fact, to be sure that we are free from the pernicious influence of previously acquired opinions, we will need to cast off all previously acquired *ideas* as well. For in many cases, judgments automatically fall out of ideas. So long as we retain the ideas of the sun and light or of two right angles and the intersection of two straight lines, for instance, we will automatically judge that the sun is light or that the intersection of two straight lines always forms angles equal to two right angles (Gassendi 1658: III.279b). But we cannot cast off all previously acquired ideas. For one thing, Gassendi thinks, the possession of ideas is not under voluntary control (Gassendi 1658: III.279b). For another, this would render further progress impossible: if, *per impossibile*, you had cast off all the beliefs and ideas acquired through the senses, you would have no store of concepts left to work with and, at best, you could say simply, “I, I, I …” (Gassendi 1658: III.320a).

(p. 603) 4. The Eternal Truths and the Immaterial Intellect

Gassendi sees the First Meditation as intended to serve as an argument for the existence of innate ideas: any ideas that survive universal suspension of judgment are thereby supposed to be innate (Gassendi 1658: III.320a). So, one aspect of Gassendi’s attack on innate ideas is his objection that universal suspension of doubt is impossible. But there are others. For one, Gassendi thinks innatism leads Descartes to “speciously and Platonically” (Gassendi 1658: III.378b) posit that there are true and immutable natures and eternal truths.[11] Readers now tend to focus on Descartes’s claim that the eternal truths are created, but for Gassendi what is most objectionable is that Descartes accepts the existence of eternal truths in the first place.[12] Here’s the worry. Descartes says that essences and eternal truths “are immutable and eternal, since the will and decree of God willed and decreed that they should be so” (AT VII.380/CSM II.261), but this is inconsistent. If the eternal truths depend on God, then they cannot be immutable: God could change them. If they are created by God, then they cannot be eternal: what is created must be created in time. The only way out is to accept “that there is nothing beyond God … except that which is created by him, that which exists, that which is particular” (Gassendi 1658: III.377b).

The rejection of the eternal truths does a lot of work for Gassendi. Since it deprives innate ideas of any special objects, it serves as another reason to reject innate ideas. It also counts against the existence of the sort of fully autonomous immaterial intellect Descartes accepts, since if there are no innate ideas the intellect cannot function without input from the senses. Gassendi also objects to Descartes's claims about the immateriality of the intellect on the grounds that the chiliagon argument—which is intended to establish a difference in kind between intellect and imagination—succeeds in establishing only a difference in degree:

> It does not follow from this that you have reason to add more than one kind of internal cognition. It is only accidental and a matter of degree whether you contemplate a certain figure distinctly or confusedly, intently or absent-mindedly. And indeed, when we attempt to run through the heptagon, octagon, and other figures (p. 604) all the way up to the chiliagon or miriagon, and always continually attend to the distinctness or lack of distinctness, we will not be able to say where, or with what figure, imagination stops and only intellect remains. (AT VII.331/CSM II.229/ Gassendi 1658: III.385b–386a)

However, in later works Gassendi accepts an immaterial intellect, albeit one that operates only on material received through the senses (Gassendi 1658: II.440a–54b).

5. God

According to Gassendi, all three of the *Meditations*' arguments for the existence of God contain something original. Unfortunately, none of them are any good. It was unwise of Descartes to have "departed from the open and level royal road that leads to the knowledge of God's existence", namely contemplation of the marvel of the universe (Gassendi 1658: III.329b). Two flaws affect all three arguments: they all require us to have an idea of an absolutely infinite being; and they all involve some sort of circularity.[13]

Of course, Gassendi does not deny that we have an idea of God. What he denies is that we have the particular idea of God Descartes requires: a positive idea of an absolutely infinite being. We can think of a perfect or infinite being by gradually augmenting our ideas of the perfections we have observed in the human beings around us, but such an idea cannot truly capture infinity and hence it cannot represent God "as he is" (AT VII.287/ CSM II.200/Gassendi 1658: III.323b). Although Gassendi seems to think of this as a commonplace theological point, he still develops it at some length in the *Disquisitio*. It's one of the few points Descartes responds to in the Letter to Clerselier.

Descartes insists that you cannot deny having the idea of God he requires if you can make sense of the phrase "the most perfect thing we can conceive" (AT IXa.209/CSM II.27). Moreover, he accuses Gassendi of misunderstanding what ideas are by thinking of them as images in the corporeal imagination (AT IXa.363–4/CSM II.251). The accusation is unfair. Gassendi says that he speaks of ideas as images in the same sense in which Descartes says that ideas are as it were images of things: they are *similitudines*, repre-

sentations, of things. More precisely, they are representations of the intrinsic (p. 605) properties of things. Denying that we have an idea of God is thus compatible with our being able to think of God in some way:

> It is one thing for us to perceive something through a true idea or image, another for us to perceive it through a necessary consequence of something that was previously supposed. For in the first case, we conceive that the thing is such, in the second that it must be some such. And in the first case we understand the thing distinctly and as it is in itself, but in the latter, we know it only confusedly and by analogy.
>
> (Gassendi 1658: III.322b)

We'll see below that Gassendi makes essentially the same point about our grasp of the hidden substances underlying the manifest properties of minds and bodies.

The second problem that affects all of Descartes's arguments for the existence of God is the familiar problem of the Cartesian Circle: "you are certain that God exists and is not a deceiver because you have clear and distinct perception of him, and you are certain that clear and distinct perception is true because you know that there is a God who cannot be a deceiver" (Gassendi 1658: III.316a). This—as Descartes notes in lieu of an answer (AT IXa.211/CSM II.274)—is a point made in earlier Objections as well, including those by Arnauld.

Gassendi, like Arnauld, discusses the Cartesian Circle relatively briefly, without the sort of fanfare that later readers tend to think it requires. Arnauld may downplay the objection because he is generally sympathetic to Descartes's project; perhaps he sees it as a mere slip and not a fatal flaw. In contrast, Gassendi downplays the problem of the Cartesian Circle because he thinks there are so many other, even more serious, problems with Descartes's arguments.

6. The Real Distinction

Perhaps the most problematic argument, on Gassendi's view, is the real distinction argument. Gassendi has a number of objections to it, the chief of which is the objection that Descartes has not succeeded in identifying the essences of mind and body.

Gassendi thinks that the *cogito* and what follows is supposed to establish that the essence of the mind is thought (Gassendi 1658: III.299b–300a). He argues that the *cogito* does no such thing.[14] When Descartes tells us that the mind is a thinking thing, he has paraded a trivial truth as a great philosophical discovery. For he has simply stated a power of the mind that we all know it has, whereas knowledge of essences requires identifying the underlying, categorical features in virtue of which it has that power.

(p. 606) Here Gassendi suggests an alternative methodology, “something like a chemical investigation” of the mind (AT VII.276–7/CSM II.193/Gassendi 1658: III.311a). We know that the mind exists because we know that it’s thinking, but “knowledge of the existence of a thing has no necessary connection with knowledge of its essence” (Gassendi 1658: III.290a–b). This is a very general problem with Descartes’s method—it makes knowledge of essences far too easy to acquire:

> If this method of philosophizing of yours was appropriate, what … nature … would then remain hidden? And if anyone took pains to explore or investigate the nature of the magnet, wouldn’t he be absurd, since he should think himself satisfied with this little formula of yours, that the whole nature of the magnet consists in the fact that it attracts iron and points toward the poles?
>
> (Gassendi 1658: III.306a–b)

Attracting iron and pointing towards the poles is how we identify things as magnets—it’s something like their Lockean nominal essence. The real essence of the magnet is that in virtue of which it has such powers, namely its inner corpuscularian structure. Since we do not know the inner corpuscularian structure of the magnet (or any other body), we do not know its essence. Gassendi and Descartes thus conceive of the order of knowledge in opposite directions. For Descartes, knowledge of existence follows knowledge of essence; for Gassendi, it comes first. When you perceive accidents, you “conceive that there is something that is the subject of the accidents” (Gassendi 1658: III.290b). Knowledge of essences, in contrast, “requires a certain complete internal examination”, so “essence does not become known except by bringing to light every inner depth” (Gassendi 1658: III.311b–12a).

That the *cogito* fails to show us the essence of the mind is not, then, an isolated problem. Gassendi argues that the wax argument—which he understands as the main argument for the claim that the essence of body is extension—fails for parallel reasons. We know the accidents of the wax, but have no way of getting from that to knowledge of its inner nature:

> Besides the color, the shape, the fact that it can melt, etc. we conceive that there is something that is the subject of the accidents and changes we observe, but what this subject is, or what its nature is, we do not know. This always eludes us, and it is only a kind of conjecture that leads us to think that there must be something underneath the accidents. So I am amazed at how you can say that once the forms have been stripped off like clothes, you perceive more perfectly and evidently what the wax is. Admittedly, you perceive that the wax or its substance must be something over and above such forms, but what this something is you do not perceive. (AT VII.272/CSM II.189–90/Gassendi 1658: III.311a)

The problem is general: Descartes has not “tried to make clear the nature of material things or their powers, properties, and actions through the size, shape, motion, position”, etc. of the particles from which material things are composed (Gassendi 1658: III.311a).

(p. 607) This is the most central of Gassendi's objections to the real distinction argument, but it is not the only one worth considering. He questions whether it follows from the fact that we can conceive of mind and body separately that they are two complete substances; if it does not, then Descartes has no right to frame the question as whether two complete substances are separable (Gassendi 1658: III.395).[15] He questions whether the real distinction argument excludes the possibility that the mind is a body distinct from the visible body—for instance, a very fine, spiritual body intermixed with the coarser matter of the visible body (AT VII.339/CSM II.235/Gassendi 1658: III.391a), a possibility that cannot be ruled out on theological grounds because some of the Church Fathers accepted it (Gassendi 1658: III.392a–b). He argues that Descartes should not even be trying to show that mind and body are distinct if his goal is to prove that the mind is immortal, since many people have held that animals have souls distinct from their bodies without inferring that they are immortal (Gassendi 1658: III.392b).[16] Finally, he argues that holding that mind and body are two really distinct substances raises explanatory problems concerning mind–body interaction[17] and mental representation[18] that Descartes lacks any resources to solve.

Descartes's response to this last objection in the Letter to Clerselier is brief but striking. These "questions presuppose amongst other things an explanation of the union between the soul and the body, which I have not yet dealt with at all" (AT IXa.213/CSM II.275).[19]

7. Conclusion

I said that Gassendi thinks the wax argument is supposed to establish that the essence of body is extension. What about the Fifth Meditation argument concerning the essence of material things? Gassendi seems unimpressed with it, exclaiming, "that all material things are provided with quantity … shape … motion and rest [etc.] … even barbers and the dim-sighted know" (Gassendi 1658: III.376b). Does he simply fail to see the role that Descartes's claim plays in the project of mathematizing nature? Does he simply fail to see that Descartes is trying to prove that we should do physics by doing math? It might be more accurate to say that Gassendi—despite his great admiration for Galileo and (p. 608) his own excursions into a roughly Galilean science of motion[20]—finds the claim too implausible to take seriously. He insists that "material things are the subject-matter of applied, not pure, mathematics" (AT VII.329/CSM II.228/Gassendi 1658: III.385a), because mathematical points, lines, and surfaces do not exist in reality (Gassendi 1658: III. 378a).[21]

Gassendi's concern about the relationship between mathematical and material objects plays a surprisingly small role in the Fifth Objections and the *Disquisitio*, considering the goals of the *Meditations*. Nonetheless, Descartes noticed it, and felt compelled to respond. In the Letter to Clerselier, he describes it as the "objection of objections"—namely, that "mathematical extension … is nothing other than my thought, and hence … cannot have any subsistence outside my mind, being merely an abstraction which I form from physical bodies" (AT IXa.212/CSM II.275). He is, or pretends to be, appalled: "it follows

from this that nothing we can in any way understand, conceive, or imagine should be accepted as true" and hence that "we must entirely close the door to reason and content ourselves with being monkeys or parrots rather than men" (AT IXa.212/CSM II.275). Descartes's characterization is not entirely accurate. Gassendi is not saying that nothing we can conceive is true. Rather, he is saying that the mere fact that we conceive something is no evidence of its truth.

This objection, and Descartes's response, seems to me to capture the entire debate in a nutshell. Gassendi thinks that Descartes's basic methodology is hopeless and that the only claims he succeeds in establishing are trivial ones. Descartes thinks that Gassendi is so mired in the senses that he has completely failed to understand the project (this may be out of malice but is more likely due to sheer stupidity). Gassendi's reading of Descartes is sometimes insightful, often inaccurate, and always unsympathetic. The same goes for Descartes—without, perhaps, the insight.

What moral should we draw from the Fifth Objections and Replies? It tells us that Descartes had a hard time making meaningful philosophical contact with interlocutors who did not share his basic theoretical orientation, and that he tended to become belligerent in such situations. (This can be seen elsewhere, not least the exchange with Hobbes). It may help put into focus a strand of Platonism in Descartes, and it helps us remember that the significance of the *Meditations* for physics was far from obvious to Descartes's contemporaries. Ultimately, however, the exchange is disappointing: neither philosopher appears at their best.

References

Bellis, Delphine (2017), "Nos in Diem Vivimus: Gassendi's Probabilism and Academic Philosophy from Day to Day", in Sébastien Charles and Plinio Junquiera Smith (eds.), *Academic Scepticism in the Development of Early Modern Philosophy*. International Archives for the History of Ideas. Dordrecht: Springer, 125–52.

Bloch, Olivier (1971), *La philosophie de Gassendi: nominalisme, matérialisme et métaphysique*. The Hague: Martinus Nijhoff.

Bougerel, Joseph (1737), *Vie de Pierre Gassendi*. Paris: Imprimerie de J. Vincent.

Fisher, Saul (2014), "Pierre Gassendi", in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*. Stanford: Stanford University [online]. Available at: **https://plato.stanford.edu/archives/spr2014/entries/gassendi/** [accessed October 19, 2018].

Forgie, William (2007), "Gassendi and Kant on Existence", *Journal of the History of Philosophy* 45 (4): 511–23.

Gassendi, Pierre (1658), *Opera Omnia*, 6 vols. Lyon: Laurent Anisson and Jean Baptiste Devenet.

Joy, Lynn Sumida (1987), *Gassendi the Atomist: Advocate of History in an Age of Science*. Cambridge: Cambridge University Press.

Lennon, Thomas (1993), *The Battle of the Gods and the Giants*. Princeton, NJ: Princeton University Press.

LoLordo, Antonia (2015), "Copernicus, Epicurus, Galileo, and Gassendi", *Studies in the History and Philosophy of Science* 51: 82–8.

LoLordo, Antonia (2018), "Gassendi on Skepticism", in Diego Machuca and Baron Reed (eds.), *Skepticism: From Antiquity to the Present*. London and New York: Bloomsbury, 295–305.

Nolan, Lawrence, and Alan Nelson (2006), "Proofs for the Existence of God", in Stephen Gaukroger (ed.), *The Blackwell Guide to Descartes' Meditations*. Oxford: Blackwell, 104–21.

Osler, Margaret J. (1994), *Divine Will and the Mechanical Philosophy*. Cambridge: Cambridge University Press.

Palmerino, Carla Rita (2004), "Gassendi's Reinterpretation of the Galilean Theory of Tides", *Perspectives on Science* 12 (2): 212–37.

Popkin, Richard H. (2003), *The History of Scepticism: From Savonarola to Bayle*. New York: Oxford University Press.

Shapiro, Lisa, ed. (2007), *The Correspondence between Princess Elisabeth of Bohemia and René Descartes*. Chicago: University of Chicago Press.

Notes:

([1]) Both were published in Gassendi's *Opera Omnia*. All references to Gassendi's work are to the *Opera* (Gassendi 1658), cited by volume, page, and column. For quotations from the Fifth Objections I give AT/CSM references as well.

([2]) *Epistolica exercitatio, in qua principia philosophiae Roberti Flvddi medici reteguntur* [*Epistolary exercise in which the principles of philosophy of the doctor Robert Fludd are exposed*], 1630; *Parhelia, sive soles quatuor spurii* [*Parhelia, or, four spurious suns*] (1630); and *Mercurius in sole visus … Anno 1631: pro voto … Keppleri* [*Mercury seen on the face of the sun … In 1631, as Kepler promised*] (1632), a record of the transit of mercury that had been predicted by Kepler.

([3]) *Viri illvstris Nicolai Clavdii Fabricii de Peiresc, senatoris Aquisextiensis vita* [*Life of the illustrious gentleman Nicolas-Claude Fabri de Peiresc, senator of Aix*], 1641, and *De apparente magnitudine solis humilis et sublimis … in quibus complura physica opticaque problemata proponuntur, & explicantur* [*On the apparent size of the sun on the horizon and overhead … in which many physical and optical problems are proposed and explained*], 1642. *Parhelia, Mercurius in sole visus*, and *De apparente* are all published in

volume 3 of Gassendi's *Opera Omnia* (*Philosophica Opuscula*) rather than volume 4 (*Opera Astronomica*), as they have implications for both physics and epistemology. See Bellis 2017: 137 for the latter.

([4]) For Gassendi on Galileo, see Gassendi 1658: VI.4b, VI.53b, and VI.66b.

([5]) See Osler 1994 for an influential characterization of Gassendi's project in these terms.

([6]) For Gassendi's commitment to Copernicanism, see Gassendi 1658: III.102 (no columns), III.519a, and I.149a. For his reluctance to attribute Galileo's sentence to the Pope himself, see III.519b and III.641b, IV.60a–b, and I.149a. See LoLordo 2015 for more on this, and Joy 1987: 102 for an alternative view.

([7]) Bougerel (1737: Book I, no pagination) reports that the two philosophers reconciled in 1647 or 1648, after a dinner party in Paris, but his accuracy is disputed.

([8]) Gassendi holds that it is stipulated by the faith that the mind is an incorporeal substance (Gassendi 1658: II.440a), and attempts to bolster this via arguments that the intellect—the one faculty that distinguishes us from animals—is immaterial (Gassendi 1658: II. 425a).

([9]) Bloch (1971: 121) concurs that this is the heart of the debate. Fisher (2014: section III, no pagination) holds the related view that the debate is essentially over epistemology. For dissenting views, see Osler 1994 and Lennon 1993.

([10]) There is some dispute about the relative importance and roles of Pyrrhonian and Academic skepticism. Popkin (2003: 91–6, 120–7) argues that Gassendi started out as a Pyrrhonian and that Academic skepticism only became important for him much later (after the *Disquisitio*). Bellis (2017) argues that Academic skepticism played a constructive role all along. See also Fisher 2014: section 3; LoLordo 2018.

([11]) On the robust understanding of eternal truths that Gassendi has in mind—one on which an eternal truth is something more than a conditional like *if there are men, there will be animals*—eternal truths go hand in hand with true and immutable natures. If it is an eternal truth that triangles have three sides, there must be something that *makes* it true—the true and immutable nature of a triangle. Conversely, if there are true and immutable natures, there must be eternal truths, because the eternal truth that triangles have three sides flows from the true and immutable nature of a triangle in the same way judgments flow from ideas.

([12]) He does also object to Descartes' claim that the eternal truths are divinely created (Gassendi 1658: III.377a).

([13]) A few other objections are worth noting as well. To the Third Meditation version of the cosmological argument: Descartes is right to suppose that ideas require causes at least as real as themselves, but wrong to suppose that it's the objective reality—rather than just the formal reality—of the idea that needs a cause. To the Fifth Meditation ver-

sion of the ontological argument: Descartes misunderstands the logic of perfections or properties. He asks whether something that is deprived of existence could still remain some sort of thing (Gassendi 1658: III.381a–b). The answer is obviously no, and so Gassendi concludes that existence is a precondition for having properties or perfections in the first place. This line of objection is often compared to Kant's: see, e.g. Fisher 2014: section III, no pagination; Forgie 2007: 511; Nolan and Nelson 2006: 121.

([14]) Perhaps as a result, he thinks the *cogito* is trivial: "when I got to this passage in which I hoped to find a truth which had not been heard before now and which was the source of all truths … I said, good God, is *that* the new thing which had to be searched for with so much preparation and effort, that you exist!" (Gassendi 1658: III.289a).

([15]) Most of these objections are made by others as well; this is very similar to one of Arnauld's objections (AT VII.202/CSM II.142).

([16]) This is, as Gassendi notes, an objection given by Arnauld as well (AT VII.204/CSM II. 143–4), although Arnauld seems to think that Descartes's explanation of the relationship between immateriality and immortality in the *Synopsis* is sufficient reply.

([17]) For on Descartes's theory, human bodies, like other extended things, act by contact alone. This is the same problem Elisabeth articulates at the beginning of her correspondence with Descartes (AT III.661/Shapiro 2007: 62).

([18]) The worry is that if human minds are simple and unextended, they cannot represent composite things like bodies (AT VII.337–8/CSM II.234/Gassendi 1658: III.400b).

([19]) Descartes makes the same point in the Elisabeth correspondence (AT III.64/Shapiro 2007: 64–5).

([20]) In his 1642 *De motu* and 1646 *De proportione*. See Palmerino 2004 for more on this.

([21]) Gassendi recognizes that Descartes claims that mathematical points etc. exist as the boundaries of material things, but on his view this is irrelevant because boundaries themselves are mental abstractions.

Antonia Lolordo

University of Virginia

Optics, First Philosophy, and Natural Philosophy in Hobbes and Descartes

Douglas M. Jesseph

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Abstract and Keywords

This chapter concerns the contrasting approaches of Descartes and Hobbes to optics, first philosophy, and natural philosophy. In all three areas of inquiry both thinkers embraced the mechanistic "new philosophy", according to which the phenomena of nature can be explained in terms of the motions and impacts of material bodies, yet they held radically different conceptions of what principles were essential to that philosophical program, the extent to which mechanism could be applied, and the role of God in both first philosophy and natural philosophy. Ultimately, even though they both aimed to offer an alternative to Aristotelianism, their differences were more significant than their similarities.

Keywords: Thomas Hobbes, optics, mechanism, Third Objections, natural philosophy

(p. 610) THE relationship between Hobbes and Descartes has been the object of considerable scholarly scrutiny over the years, and for good reason.[1] The encounter between the two thinkers shows that the "new philosophy" of the seventeenth century may have had the rejection of Aristotelianism as a unifying theme, but there were significant differences of opinion over how best to articulate an alternative to the received philosophy of the Schools. Both Hobbes and Descartes were committed to a mechanistic conception of the natural world, according to which the phenomena of nature are to be explained in terms of the motions and impacts of material bodies. They nevertheless differed over what principles constituted the true foundations of the mechanistic philosophy, the extent to which the mechanical model could be applied, and God's role in the new philosophy and natural science.

My purpose here is to work through some of the most salient differences between Hobbes and Descartes, which I will do in three sections. The first takes up the issues in optics that were the subject of the earliest exchanges between the two philosophers. Section 2 examines the "Third Objections" to Descartes's *Meditations*, where the disputed questions deal with epistemology and first philosophy. The third section deals with (p. 611)

Hobbes's reaction to the natural philosophy in Descartes's *Principles of Philosophy* in his 1655 treatise *De Corpore*.[2]

1. Hobbes, Descartes, and Optics

The first indication of Hobbes's encounter with the work of Descartes comes in an October, 1637 letter to Hobbes from Sir Kenelm Digby, which announced "I come now with this to make good w^{t} j promised you in my last: which is to putt Monsieur des Cartes (whom Mydorge so much admireth) his book into your hands" (Hobbes 1994: I.51). The book in question is the *Discourse* and there is little doubt that its essay *Dioptrics* was of greatest interest to Hobbes. The English philosopher had been concerned with issues involving light and vision at least since he conducted his pupil, William Cavendish (the third Earl of Devonshire), on a tour of the Continent in 1634–6. The surviving letters show Hobbes to have had a particular interest in the science of optics. In June of 1636, for instance, he wrote to the Earl of Newcastle that "Mydorgius tels me he has sent to S^{r} Charles [Cavendish] his treatise of refraction perfected" (Hobbes 1994: I.32). During this period he spent many months in Paris and became involved with the group of savants associated with Marin Mersenne, who was favorably impressed by Hobbes, and particularly with his optical work. In March of 1640 (not long before Hobbes would return to Paris for a decade to escape the English Civil War), Mersenne wrote to Theodore Haak in London, remarking that "you have a certain Mr. Hobbes among you, whom I have seen accompanying a nobleman. He has some quite remarkable philosophical views" (Mersenne 1933–88: 11.404).

In November of 1640 Hobbes addressed a 56-folio letter (solicited by Mersenne) to Descartes that was devoted primarily to a critique of the *Dioptrics*. The letter is now lost, but it initiated a rancorous exchange that would last until March of 1641. A comparison of the Cartesian and Hobbesian approaches to optics shows a considerable degree of agreement.[3] Both understood light to be the action of a luminous body that is transmitted through a medium. They also denied that visible qualities (and indeed sensible qualities generally) result from "intensional species" propagated from perceived objects, instead characterizing perception in terms of motions conducted through the sensory apparatus that have no intrinsic resemblance to perceived qualities such as color or heat. Most importantly, both offered accounts of reflection and refraction that can be characterized as broadly mechanistic. The key point of difference between these theories is that Descartes analyzed reflection and refraction in terms of a tendency or "determination" (p. 612) of motion distinct from an actual motion, whereas Hobbes insisted that only actual motions could be causally efficacious.

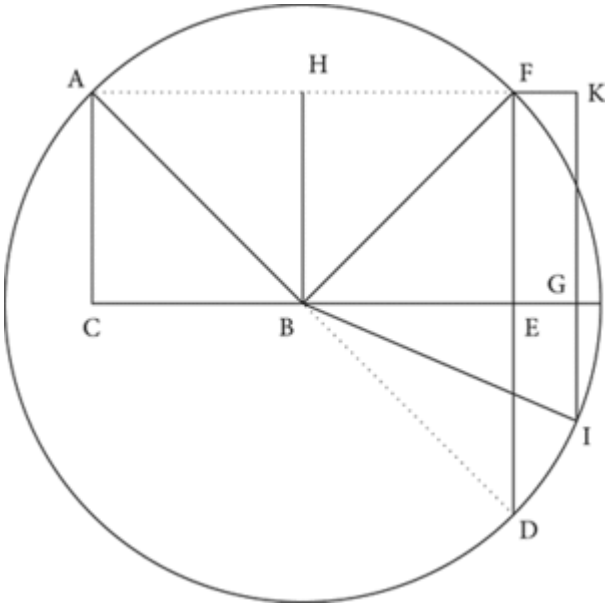


Figure 38.1 Descartes's analysis of reflection and refraction, based on *Dioptrics*, Discourse 2 (AT VI.95–8).

Descartes accounted for reflection and refraction with his notorious analogy to a struck tennis ball, whose course is modified depending on the resistance of the media through which it travels.[4] If we assume the ball is struck at A (Figure 38.1) in the direction of B and the plane CBE is completely hard, then the ball is reflected at B. The motion from A to B can be analyzed as the compound of two determinations: one horizontal along the line AH, the other vertical in the direction HB. When the ball is reflected, the horizontal determination remains unaltered, but impact with the plane CBE reverses the vertical determination, sending the ball to F (where an unimpeded ball would have arrived at D in the same time). In the case of refraction, the plane CBE offers less than complete resistance; this leaves the horizontal determination unaltered but lessens the vertical determination, sending the ball on the path BI (where the ratio IG:KG gives the amount of the vertical tendency that remains after passing through the plane CBE).

Hobbes dismissed the concept of a determination to motion and argued that Descartes should have spoken of a "determined motion" rather than a mere "determination to motion" (AT III.288). This is a consequence of Hobbes's fundamental principle that "all action is local motion in the agent, just as all passion is local motion in the patient".[5] This principle requires that alterations in a body's motion can be explained only in terms of actual motions rather than determinations to (unactualized) motion. Further, the Hobbesian approach to optics interprets light rays, not as one-dimensional (p. 613) lines (in the style of Descartes and other writers on optics), but as parallelograms having breadth as well as length. This is consistent with Hobbes's treatment of geometric magnitudes, where a point is an extended body sufficiently small that its magnitude can be neglected; likewise, Hobbes took lines not as "breadthless lengths" in the style of Euclid, but as paths traced by points in motion and possessing both length and breadth.[6]

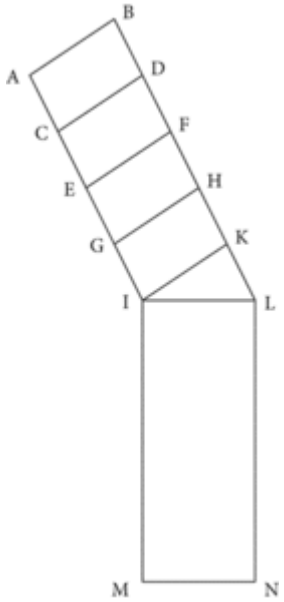


Figure 38.2 Hobbes's model of refraction, based on his *Tractatus Opticus*, Def. 1 (Mersenne 1644: 570).

If unimpeded, light rays move with uniform rectilinear motion, and refraction or reflection arise when differences in the media alter this motion. To account for refraction, Hobbes considered the case where the ray parallelogram ABKI (Figure 38.2) passes into a relatively dense medium along the line IL. The denser medium offers more resistance, so the speed of the ray is decreased, starting at I and moving across the front of the ray. In essence, this causes the ray to pivot about the point I and acquire a new rectilinear motion along the perpendicular to IL, which then continues as the ray moves onward to MN. In the case where a ray goes from a more dense to a less dense medium, the entering portion of the ray will move faster, so that refraction will be away from the perpendicular. In the case where a ray enters perpendicularly to a medium of different density, the light will be propagated as a straight line, since all parts of the wave will have their motions accelerated or retarded at the same rate.

Hobbes held that a light ray is reflected when the reflective surface compresses slightly and then restores itself to its former position, sending the ray off at an angle equal to its (p. 614) angle of incidence.[7] Descartes characterized reflection as an instantaneous reversal of the determination of the ray's motion toward the reflective surface, which produces a new motion away from the surface. Hobbes found this obscure for several reasons. First, his principle that only local motion can impede local motion requires that the reflection of a ray result from some motion contrary to the ray's initial path. Second, he rejected the claim that there could be perfectly hard and inelastic bodies, because a body that does not yield to a very small force would never yield to any multiple of such forces, however great.[8] Descartes rejected both principles and complained that Hobbes "has thoroughly deceived himself, because he failed to distinguish the motion from the determina-

tion; for the motion itself must not be diminished at all, if reflection is to take place at exactly equal angles" (AT III.289).

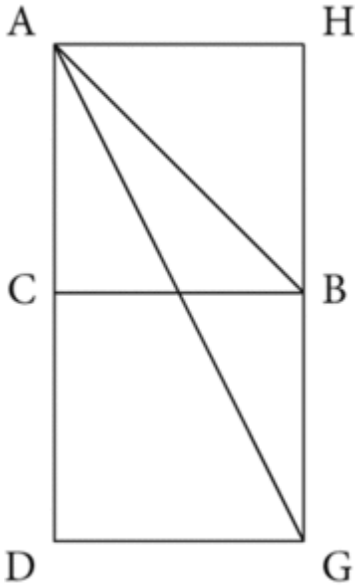


Figure 38.3 Descartes's rebuttal to Hobbes's account of refraction, based on his letter to Hobbes of January, 1641 (AT III.288).

Descartes also defended the coherence of his notion of a determination to motion distinct from an actual motion, claiming that Hobbes's procedure of taking account of actual motions entailed false results (AT III.288). He argued that if we suppose a body to move from A to B, with one unit of speed in the direction of AH and one unit of speed in the direction AC, it will arrive at B with two units of speed (Figure 38.3). In contrast, if we assume a body moved from A to G with one unit of speed in the direction AH and two in the direction AD, it will arrive at G with three units of speed. According to Descartes, taking account of the actual motions rather than the determinations to motion requires that the line AB is to the line AG in the ratio 2:3, when in fact it is in the ratio √2:√5, or 2:√10. This argument is ineffective because it relies on the assumption that (p. 615) Hobbes's procedure requires that the motion along the line AB be analyzed as the sum of two degrees of speed (one along AH, the other along AC) while the motion along AG sums three degrees of speed (one along AH and two along AD). But, as Hobbes pointed out, his method requires that the speeds be proportional to the distances along the lines AB and AG, so that the error Descartes charged does not arise.[9]

The dispute over the proper account of refraction was the most significant part of the optical correspondence, which quickly devolved into a hostile exchange. This was due in part to the very broad areas of agreement between the two thinkers, which gave them incentive both to exaggerate their theoretical differences in order to maintain the novelty of their respective approaches, as well as to insinuate that the other party had borrowed concepts or demonstrations without crediting the true source. Hobbes was surely pained to see some of his cherished ideas pre-empted in print. Likewise, Descartes was unwilling

to acknowledge that Hobbes had contributed anything to the science of optics, as when he wrote that the English thinker's treatment of colors "contains nothing that I had not already written, except that he does not explain the matter adequately" (AT III.318). It is therefore hardly surprising that Descartes would finally write to Mersenne that "having read at leisure this last letter by the Englishman … I think it best if I have nothing to do with him and therefore refrain from replying to him" (AT III.320).

2. Hobbes and the "Third Objections"

While the Cartesian and Hobbesian approaches to optics have a significant amount in common, their accounts of epistemology and first philosophy are radically different. This fundamental disagreement is on display in Hobbes's brief and caustic "Third Objections" to the *Meditations*, and in Descartes's curt (or even dismissive) "Replies".[10] In soliciting Hobbes's objections, Mersenne was presumably hoping that the philosophers would engage in a spirited discussion of foundational issues, but what emerged was more akin to an exchange of obscene gestures than a reasoned philosophical debate. Hobbes's case against the *Meditations* can be summarized in three claims: the inadequacy of Descartes's attempt to establish the immateriality of the soul, the impossibility of a significant idea of God, and the inability of reasoning to tell us anything about the nature of things.[11]

(p. 616) In his reply to the *cogito*, Hobbes accused Descartes of begging the question in favor of the immateriality of the soul. He observed that Descartes correctly inferred "I exist" from "I think", but this is only because "we cannot conceive any act without its subject" (AT VII.173). He noted, however, that "it could be that the thinking thing that is the subject of the mind or reason or intellect is itself something corporeal; the contrary is assumed, not proven" (AT VII.173). Hobbes's fundamental point here is that matter offers the best available model for something to serve as the subject for various acts or as a substance in which properties inhere. In the mechanistic "new philosophy" that both Hobbes and Descartes claimed to represent, properties such as color, temperature, solubility, or elasticity are accounted for by showing how they arise from the motion and impact of material bodies. As Hobbes noted, "it seems that the subject of any act can be understood only in terms of something corporeal, or in material terms, as [Descartes] himself shows later with the example of the wax" (AT VII.173). The manifest properties of the wax in the Second Meditation change even as the wax remains, and the best explanation for this fact is to see such properties as arising from the configuration of its extended parts. Hobbes took this to show that there is no reason a priori to hold that thought is not likewise reducible to motions taking place in the brain and sensory system.

Descartes was unmoved by this criticism, and his reply shows the extent to which he and Hobbes differed on how far the mechanical model of explanation could reach. In Descartes's scheme of things there is no basis to hold that matter is the only kind of substance, since "all logicians and people in general are accustomed to say that some substances are spiritual and some are corporeal" (AT VII.175). Thus, Hobbes cannot simply assume that a purely materialistic account of the mind is legitimate, and the recognition

that “acts of thought” such as judgment or volition differ in kind from “corporeal acts” such as motion or figure shows that mind and body are, in fact, distinguishable. Once these two conceptions are distinguished “it is easy, from what is said in the Sixth Meditation, to determine whether they are one and the same or different” (AT VII.176).

Hobbes’s objection to the Cartesian idea of God is based in the principle that all ideas must be “images” that ultimately originate in sense experience. He insisted that to have the idea of a man is to be aware of “an image constituted by a figure and color”, and about which one may ask whether it truly resembles a man. In the case of God, however, Hobbes concluded that “we have no image or idea of God answering to the sacred name of God, and thus we are forbidden from worshiping God in the form of an image” (AT VII: 180). This epistemology clearly rules out anything answering to the Cartesian idea of the eternal, infinite, omniscient, and omnipotent creator of the universe and its contents. But without an idea of God to ground the Third Meditation, the Cartesian project collapses. Descartes admitted as much, noting that Hobbes “wants the term ‘idea’ to be understood only for images of material things depicted in the corporeal imagination; which being granted, it is easy for him to prove that there can be no proper idea of God or of an angel” (AT VII.181). However, he insisted there is no reason to restrict the contents of the mind to images that arise from sensation or imagination. The ideas of the self, of substance, or of the infinite are not of sensory origin, and it is only Hobbes’s dogmatic commitment to a crude empiricism that rules out an idea of God. As (p. 617) Descartes explained: “Nothing we attribute to God can be derived from external objects as a copy, because there is nothing in God similar to what is in external, that is corporeal, things” (AT VII.188).

The epistemology that underlies Hobbes’s denial of the coherence of the Cartesian idea of God also led him to conclude that reasoning could tell us nothing about the nature of things, but only about how we have agreed to assign names to various phantasms or images upon which our reasoning depends. In the Hobbesian scheme of things, the objects of our reasoning must be either ideas in the mind or names that designate such ideas. Ideas themselves (as we have seen) derive from sense experience. As Hobbes explained in the fifth chapter of his 1651 *Leviathan*:

> When a man *Reasoneth*, hee does nothing else but conceive a summe total from *Addition* of parcels; or conceive a Remainder, from *Substraction* of one summe from another: which (if it be done by Words,) is conceiving of the consequence of the names of all the parts, to the name of the whole; or from the names of the whole and one part, to the name of the other part … For REASON, in this sense, is nothing but *Reckoning* (that is, Adding and Substracting) of the Consequences of generall names agreed upon, for the *marking* and *signifying* of our thoughts; I say *marking* them, when we reckon by our selves; and *signifying*, when we demonstrate, or approve our reckonings to other men.
>
> (Hobbes 2012: 64)

This doctrine rules out the possibility of reasoning involving a faculty of “pure intellection” that contemplates non-sensory ideas representing the essences of things and then draws consequences from such ideas. Instead, Hobbes took reasoning to amount to little more than the manipulation of names. He alluded to this doctrine in the “Third Objections”, when he declared “the inferences in our reasoning tell us nothing at all about the nature of things, but merely tell us about the labels applied to them; that is, all we can infer is whether or not we are combining the names in accordance with the arbitrary conventions which we have laid down in respect of their meaning” (AT VII.178). This line of thought led Hobbes to the ontological conclusion that “reasoning will depend on names, names on the imagination, and imagination, as I believe it does, on the motion of corporeal organs, so that the mind will be nothing more than motion in various parts of an organic body” (AT VII.178).

Descartes had no patience with any of this. His procedure in the *Meditations* requires that the human mind can grasp ideas by a process of “purely mental conception” that is entirely independent of sensation and imagination (which he granted to be partly corporeal processes that depend upon motions communicated through the sensory apparatus). By purely mental conception or intellection the mind can frame a clear and distinct idea of the chiliagon, although no sensory or imaginative state can depict such a figure in a way that represents it adequately. On the Cartesian account, when we reason about the properties of a triangle, “this is not a linking of names but of the things signified by the names”, i.e. “a determinate nature, or essence, or form of the triangle which is immutable and eternal, and not invented by me or dependent on my mind” (AT VII.178). Hobbes, in contrast, took the corporeal processes of sensation and imagination as the (p. 618) source of all concepts or ideas, and his thoroughgoing nominalism reduced all reasoning about abstract objects to the manipulation of names. This allowed him to develop an account of cognition and reasoning that is consistent with his materialism, but Descartes regarded it as a dogmatic bit of nonsense. As he put it, “with the same right that he concludes that the mind is motion, he could also conclude that the earth is the sky, or whatever else he pleased” (AT VII.179).

The exchange in the “Third Objections” ultimately shows how very differently Hobbes and Descartes thought about the nature of first philosophy. Descartes held that two topics were of the greatest importance in metaphysics: the existence of God and the nature of the soul. His task in the *Meditations* was to prove the existence of God by reasons that would withstand any skeptical challenge and to show with certainty that the soul is essentially immaterial (and thus need not cease to exist at the death of the body). Hobbes, in contrast, took philosophy to be a general inquiry into causes and effects that presumed a mechanical model of explanation extending to encompass everything from mechanics to human thought. In Chapter I, Article 8 of his *De Corpore* Hobbes explicitly denied that philosophy could concern itself with God,[12] and his philosophical project was principally guided by the search for mechanical causes. In the face of such monumental disagreements over points of principle, it is no wonder that Hobbes’s objections and Descartes’s replies are marked more by impatient dismissal than by intellectual engagement.

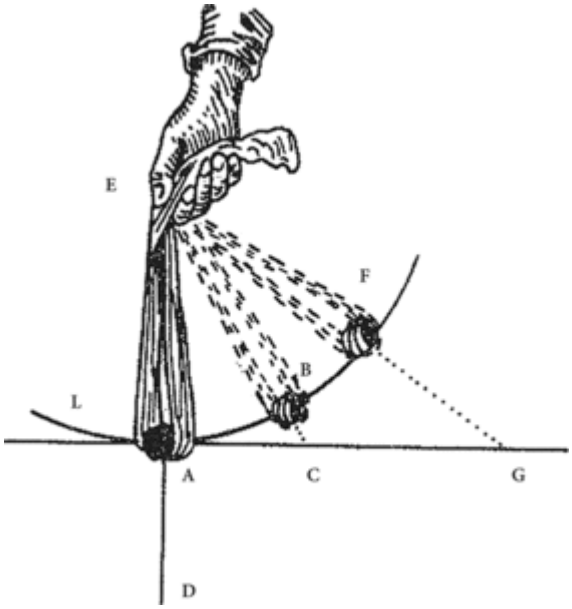
3. Hobbes and Descartes on Natural Philosophy

The 1644 publication of Descartes's *Principles of Philosophy* presented the Cartesian program for natural philosophy to the European republic of letters. Where the *Meditations* had been concerned exclusively with epistemology and metaphysics, the *Principles* offered a grand system of thought that would include first philosophy, epistemology, and natural philosophy.[13] In view of Hobbes's disdain for the *Dioptrics* and the *Meditations*, it is no surprise that he found little to like in the *Principles*. As Sir Charles Cavendish reported in a December, 1644 letter to the mathematician John Pell, "M^{r} Hobbes joines with Gassendes in his dislike of de Cartes his writings, for he utterlie (p. 619) mislikes de Cartes his last newe booke of philosophie."[14] Hobbes's antipathy to the Cartesian program for natural philosophy can best be illustrated by examining three topics from the *Principles*: the basic laws of motion, the issue of whether a vacuum is possible in nature, and the question of the infinity of the world.

We have seen that Cartesian optics employs the concept of a "determination to motion", distinct from an actual motion, in its account of light and its properties, and this became a point of dispute between Descartes and Hobbes. A similar disagreement appears in their respective treatments of the laws of motion, where Descartes interpreted compound motions as made up of tendencies to motion, which he distinguished from actual motions. For his part, Hobbes introduced the concept of an endeavor to explicate the basic principles of motion, taking endeavor as an actual motion, albeit one sufficiently small that its magnitude can be neglected.[15] This disagreement ultimately led to quite different approaches to the laws of motion and collision.

Descartes took two laws as foundational to his physics: first, that every body persists in its state (whether motion or rest) unless acted upon by an external cause, and second that all motion is by its nature rectilinear.[16] These ultimately derive from the immutability of God and His status as the primary cause of all motion, which requires that He "always preserves the same quantity of motion in the universe" (*Principles* II.36, AT VIIIA.61). Untutored common sense might conclude that a body in circular motion violates the principle that all motion is rectilinear in nature. However, Descartes argued that in such cases the natural *tendency* of a body in circular motion remains rectilinear, even if this tendency is not actualized.

To illustrate this doctrine, Descartes analyzed the motion of a stone rotated in a sling (Figure 38.4). As the sling rotates about the center E, the stone follows the circular path ABF. However, if the stone were released and allowed to move unhindered when it arrives at A, it would follow the tangent AC. Descartes took this to show that the stone has two tendencies to motion: a natural one along the tangent AC, and another along the circular arc AB. At any given instant, neither of the tendencies to move is actualized. Were the sling released, then the circular tendency would be removed and the inertial tendency along AC would dominate; likewise, were the sling to remain held, the tendency along the arc would be realized.



(p. 626) *Figure 38.4* The contrary tendencies of a stone in a sling. Descartes, *Principles of Philosophy* II.39 (AT VIIIA.64).

Descartes occasionally spoke of this tendency as a body "striving" to move in a given direction, but he explained that the striving of bodies toward motion does not imply that (p. 620) they possess desires that direct them to move or even that they are actually in motion. Rather, the striving is understood as a tendency to motion that can be hindered by other causes: "But since many different causes often act at once on the same body, and others may hinder the effect of one, then so far as we consider the one or the others, we can say that the body tends or strives to move in different directions at the same time" (*Principles* III.57, AT VIIIA.108).

The magnitudes of different tendencies in a moving body can be compared to one another, and this led Descartes to his third law of nature: a body colliding with another body that has a greater "power of continuing in a straight line" will be deflected so that the total quantity of motion is conserved as its direction changes; but a body colliding with another body having less power to continue in a straight line will carry the less powerful body along with it, losing a quantity of motion equal to that which it imparts to that body (*Principles* II.40, AT VIIIA.65). The third law set the stage for seven rules for determining the outcomes of collisions involving bodies of different sizes and moving at various speeds.[17]

This series of collision rules is one of the great embarrassments of Cartesian science, as it contains rules that are patently nonsensical. For instance, the fourth rule holds:

(p. 621)

> If the body C is at rest, and is slightly larger than B, then with whatever speed B may be moved toward C, it will never move C; instead it will be repelled by it in the contrary direction, because a body at rest resists a greater speed more than it does a smaller one, and this in the ratio of the excess of the one over the other. And so there would always be a greater force in C to resist than there would be <a force> in B to impel. (*Principles* II.49, AT VIIIA.68)

This entails the false consequence that if C is at rest and has a mass of 10kg, while B has a mass of 9.9999kg, there is no speed with which B could strike C so as to put it in motion. As Hobbes was happy to point out, the primary reason for Descartes's mistaken collision rules is that he endorsed the principle that "Motion is not contrary to motion, but to rest" (*Principles* II.44, AT VIIIA.67). Conceiving motion as the contrary to rest led Descartes to assert that the "power of any given body to act upon, or resist the action of, another" is nothing more than "the fact that every thing tends, so far as it can, to persist in the state it is in, according to the first law of nature" (*Principles* II.43, AT VIIIA.66).

Hobbes had little good to say about Descartes's approach to the laws of nature. There were no epistolary exchanges between the two on this subject, and by the time Hobbes published his treatise *De Corpore* Descartes had been dead for five years. Nevertheless, it is clear that Hobbes took issue with much of the Cartesian natural philosophy, and his account of the laws of motion is clearly intended as an alternative to Descartes's *Principles*.

As in the dispute over optics, Hobbes maintained that it makes no sense to speak of a tendency to motion that is distinct from an actual motion, or to attribute causal power to anything other than genuine motions. In working out the details of his account of motion, as mentioned above, he introduced the concept of an *endeavor*, which is an actual motion, yet one that is arbitrarily small. In his formulation:

> I define ENDEAVOUR to be Motion made in less Space and Time then can be given; that is, less then can be determined or assigned by Exposition or Number; that is, Motion made through the length of a Point, and in an Instant or Point of Time.
>
> (Hobbes 1656: 151)

This is of a piece with what we saw in his analysis of light, and it recalls his materialistic approach to the foundations of geometry: a Hobbesian point is a body small enough that its magnitude can be neglected, a line or curve is the path traced by a point in motion, and the endeavor of a body at any instant is its "point motion" through a negligibly small space in an arbitrarily short temporal interval. Although two endeavors may be of negligible magnitude, they nevertheless can be compared to one another, as being greater or less.[18]

(p. 622) Hobbes employed this understanding of endeavor to define the further concepts of impetus, resistance, and force.[19] A consequence of his analysis is that in a collision between a moving body and one at rest, the striking body must contribute some motion to the struck body, regardless of how small it may be or how little motion it may have.[20] The

basis for this conclusion is the principle that we saw in Hobbes's account of reflection: if a small impetus has no effect, then no multiple of that small impetus would have an effect, which implies that no body at rest can ever be moved. This approach is clearly inconsistent with the Cartesian impact laws, and Hobbes went on to draw two distinctly anti-Cartesian consequences from his treatment of motion:

> Corollary It is therefore manifest, that Rest does nothing at all, nor is of any efficacy; and that nothing but Motion gives Motion to such things as be at Rest, and takes it from things moved.
>
> Corollary. They are therefore deceived, that reckon the taking away of the impediment or resistance, for one of the causes of Motion.
>
> (Hobbes 1656: 156)

These two corollaries are directed against Descartes's doctrine that rest has the inherent power to resist motion and his claim that the removal of an impediment (as in the case of the stone in the sling) can be a true cause of motion.

Like Descartes, Hobbes held that the motion of bodies was subject to universal principles. In particular, he maintained that there were two fundamental constraints on the motion of any body. The first of these is what I term the 'persistence principle', first pronounced in Chapter VIII, Art. 19 of *De Corpore*: "Whatsoever is at Rest, will always be at Rest, unless there be some other Body besides it, which by endeavouring to get into its Place by motion, suffers it no longer to remain at Rest" (Hobbes 1656: 83). The second is the rule of action by contact from Chapter IX, Art. 7: "There can be no Cause of Motion, except in a Body Contiguous, and Moved" (Hobbes 1656: 90).[21] The persistence principle is clearly close in spirit to Descartes's first law of nature, whereas the second is a strict statement of mechanism that has no analogue in the Cartesian system. Indeed, Hobbes contrasted his principle of action by contact with Descartes's mistaken claim that the contrary to motion is rest:

> The same reason may serve to prove, that whatsoever is Moved, will always be Moved on in the same way and with the same Velocity, except it be hindered by some other Contiguous and Moved Body, and consequently that no Bodies whether they are at Rest, or when there is an interposition of Vacuum, can generate or (p. 623) extinguish or lessen Motion in other Bodies. There is one that has written that things Moved are more resisted by things at Rest, then by things contrarily Moved, for this reason, that he conceived Motion not to be so contrary to Motion as Rest. That which deceived him was, that the words Rest and Motion are but contradictory Names; whereas Motion indeed is not resisted by Rest, but by Contrary Motion.
>
> (Hobbes 1656: 90–1)

The theoretical picture here is consistent with what we observed in the case of optics: Hobbes insisted that only actual motions can bring about change, so that neither a "tendency to motion" nor the absence of motion (i.e. rest) can alter a body's state.

Hobbes claimed to prove both principles by a priori reasoning from basic definitions of such terms as 'body', 'motion', 'rest', and 'cause', which would give them the status of necessary or conceptual truths. This contrasts quite significantly with Descartes's approach to the laws of nature: where Descartes derived his basic laws of nature from the immutability of God, Hobbes made no mention of a deity in grounding his physics.

Hobbes's disaffection for Descartes's *Principles* was not confined to questions about the laws of motion, for he also took issue with Descartes's argument against the possibility of a vacuum. Although both Hobbes and Descartes endorsed plenism, they had entirely different reasons for denying the existence of a vacuum in nature. For Descartes, the issue was settled by a priori reasoning that showed the conceptual impossibility of a vacuum. Hobbes, in contrast, thought that the question of the vacuum was an empirical one, and he argued that the empirical evidence unambiguously favored the plenist hypothesis.

Descartes's denial of the possibility of a vacuum follows from his principle that the essence of material bodies is extension: every body is necessarily extended, and everything extended is necessarily a body.[22] At *Principles* II.16 he announced that "From the simple fact that a body is extended in length, breadth, and depth, we correctly conclude that it is a substance, because it is absolutely contradictory that there is some extension of nothing; the same is also to be concluded of space which is supposed empty: namely, that since there is extension in it, there is necessarily substance in it as well" (AT VII.49). Naive common sense might well suppose that an empty vessel such as a wine glass literally contains nothing. But this is an illusion: a wine glass is called empty when it contains no wine, but even a supposedly empty glass contains air or other subtle matter that escapes our perceptive powers. Once we rid ourselves of the "prejudice" rooted in our overreliance on the senses, we will see that a vacuum is logically or metaphysically impossible. Descartes argued that the supposition of a completely empty vessel (i.e. one containing a vacuum) is contradictory: if there is literally nothing contained in the vessel, there is nothing separating its sides, and "when there is nothing between two bodies they must necessarily touch each other" (*Principles* II.18, AT VIIIA.49). So, to attempt to conceive of a wine glass as absolutely empty, one must conceive of its sides collapsing in on themselves, leaving no glass.

(p. 624) Hobbes took such argumentation to be more worthy of derision than refutation. Having defined contiguous bodies as those having no space between them, he then mocked the Cartesian argument against the vacuum as foolish confusion:

> And this is so easie to be understood, that I should wonder at some men, who being otherwise skillful enough in Philosophy, are of a different opinion, but that I finde that most of those that affect Metaphysical subtilties, wander from Truth, as if they were led out of the way by an *Ignis Fatuus*. For can any man that has his natural Senses, think that two Bodies must therefore necessarily Touch one anoth-

> er, because no other Body is between them? Or that there can be no *Vacuum*, because *Vacuum* is nothing, or as they call it, *Non Ens*? Which is as childish, as if one should reason thus; No man can Fast, because to Fast is to eat Nothing; but Nothing cannot be eaten.
>
> (Hobbes 1656: 79)

For his part, Hobbes took the question of the vacuum as an empirical one and weighed the experimental evidence for and against the vacuum. He concluded that, although a vacuum is conceptually possible, the plenist doctrine is actually true.

Hobbes characterized disputes over the vacuum as "carried on with probability enough", but held that the issue could be settled by examining "onely one experiment, a common one, but (I think) unanswerable" (Hobbes 1656: 309). Hobbes's experiment employs a vessel with small holes in the bottom and an opening at the top. When the vessel is filled with water and the top stopped shut, no water flows through the holes; but when the top is opened, water does flow. Hobbes took this to show that "the Water cannot by its natural endeavor to descend, drive down the air below", because there is no vacuum beneath it. This, Hobbes concluded, is "a sign that all Space is full; for without this, the natural motion of the water … downwards, would not be hindered" (Hobbes 1656: 309). He deemed the case in favor of the vacuum to consist of "many specious arguments and experiments" that he considered and rejected, arguing that claims for the vacuum were at best inconclusive and occasionally inconsistent with his a priori principles of persistence and action by contact.[23]

Hobbes's engagement with the natural philosophy of the *Principles* also led him to reject Descartes's argument for the boundlessness of the material world. According to Descartes, the universe cannot be confined within limits and is therefore "indefinite" in his sense.[24] The supposition of a limit to the universe is rendered incoherent since we clearly conceive that there is an imaginable extension beyond any such limit. (p. 625) But, since the essence of material things is extension, this means that the material world can be extended beyond any supposed limit and is therefore indefinite. In Descartes's words:

> For wherever we imagine those boundaries to be, we always imagine some indefinitely extended spaces beyond them, which we not only imagine but also perceive to be truly imaginable, that is, real. And thus these spaces contain indefinitely extended corporeal substance. For, as has already been abundantly shown, the idea of the extension which we conceive to be in a given space is exactly the idea of corporeal substance. (*Principles* II.21, AT VIIIA.52)

A similar line of reasoning concludes that there can be only one world, because all imaginable space must already be filled with corporeal matter whose essence consists in extension (*Principles* II.22, AT VIIIA.52).

Hobbes rejected this reasoning because he took Descartes to have conflated the idea of space and the idea of body. He noted that "no man calls it Space for being already filled,

but because it may be filled; nor does any man think Bodies carry their Places away with them, but that the same Space contains sometimes one, sometimes another Body". Hobbes accused Descartes of having "falsely defined" space, and then "taking *Space* to be the Extension of Bodies and thinking Extension may increase continually … infer[ring] that Bodies may be infinitely Extended" (Hobbes 1656: 68).

In opposition to Descartes, Hobbes argued that questions about the magnitude and duration of the world must be "inscrutable" because no empirical test can decide them. Employing the epistemological principle that all ideas or "phantasms" originate in sensation, he argued: "Whatsoever we know that are Men, we learn it from our Phantasmes, and of *Infinite* (whether Magnitude or Time) there is no Phantasme at all; so that it is impossible either for a man, or any other creature to have any conception of *Infinite*" (Hobbes 1656: 307). Moreover, "whether we suppose the World to be Finite, or infinite, no absurdity will Follow. For the same things which now appear, might appear, whether the Creator had pleased it should be Finite or Infinite" (Hobbes 1656: 307). Such questions therefore fall outside the scope of philosophy, which means that they "are not to be determined by Philosophers, but by those that are lawfully authorized to order the Worship of God" (Hobbes 1656: 307).

We now have some insight into why (in the words of Sir Charles Cavendish) Hobbes "utterly misliked" the natural philosophy in Descartes's *Principles*. In some cases Descartes employed what Hobbes deemed nonsensical suppositions that led to false results. In particular, the notion of a "tendency" to motion and the claim that motion and rest are contrary states produced false collision laws deriving from conceptual errors. But Descartes was also guilty of offering a bad a priori argument for a thesis that must be empirically tested, i.e. whether there is a vacuum in nature. In contrast, in arguing for the indefinite extent of the world, Descartes used bad a priori reasoning for a thesis that is "inscrutable" in the sense that no evidence can decide it.

4. Conclusion

Although both Descartes and Hobbes claimed to offer an alternative to the discredited philosophy of "the Schools", their differences were ultimately more significant than their similarities. Even in the case of optics, where their approaches had a great deal in common, they accounted for reflection and refraction by very different models. More significantly, their entirely different approaches to epistemology and metaphysics dictated that there would be no significant philosophical agreement in the "Third Objections" and "Replies". It is clear from those exchanges that Hobbes's commitment to a materialist theory of mind and his requirement that all ideas originate in sensory experience are inconsistent with essential parts of the Cartesian program, and this had the effect of short-circuiting the exchange between them from the start. Moreover, their contrasting approaches to physics further attest to their deep methodological differences. Descartes took the basic principles of natural philosophy to follow from God's immutability and his preservation of the created universe. Hobbes, in contrast, had literally no place for God in

his account of the world, and he saw the basic principles of mechanism as a priori truths having universal scope and absolute necessity. Viewed from the Hobbesian perspective, Cartesian natural philosophy is a muddle-headed appeal to an inscrutable deity that yields an amalgam of error and confusion.

The picture is somewhat different when we consider two other subjects in which these thinkers made seminal contributions, namely political theory (in the case of Hobbes) and geometry (in the case of Descartes). Hobbes established his reputation as a political thinker with the 1642 publication of *De Cive*, which was widely admired by French readers. Even Descartes seems to have found something of value in it, although he had some significant reservations as well. Writing to a Jesuit (whose name is not known) in 1643, Descartes declared:

> All I can say about the book *De Cive* is that I judge that its author is the same as the one who made the "Third Objections" to my *Meditations*, and that I find him to be much more adept in moral philosophy than in metaphysics or physics; nevertheless I cannot at all approve his principles or his maxims, which are very bad and very dangerous, in that he supposes all men are wicked, or gives them the inclination to be. His entire purpose is to write in favor of monarchy. (AT IV.67)

Descartes thus shared a common view of Hobbes's approach to politics: by depicting humans in the state of nature as essentially self-interested and attempting to derive political obligation from individuals' pursuit of advantage, Hobbes makes humans "wicked" and undermines the traditional basis of morals.

The 1637 publication of Descartes's *Geometry* as one of the essays accompanying the *Discourse on Method* is generally taken to be the advent of analytic geometry, which employs algebraic methods to examine the properties of geometric curves. By representing curves as equations in two unknowns, Descartes achieved results that went far (p. 627) beyond anything that had been obtained with ancient methods and established himself as the foremost geometer in Europe. Hobbes was well aware of Descartes's achievements, and clearly esteemed his work. John Aubrey reported in his *Brief Lives* that Hobbes

> would say that had [Descartes] kept himself to Geometry he had been the best geometer in the world but that his head did not lye for philosophy … but he could not pardon him for his writing in defence of transubstantiation, which he knew was absolutely against his opinion (conscience) and donne merely to putt a complement (flatter) the Jesuites.
>
> (Aubrey 1898: I.367)

It is amusing to note that Hobbes's judgment to the effect that Descartes's "head did not lye for philosophy" echoes Descartes's own assessment of Hobbes's philosophical abilities. In the course of events, Hobbes's positive evaluation of Cartesian geometry would not be sustained, and by the 1660s he came to see the application of algebra to geometry as an intrusion of alien principles into the science of geometry.[25] In the end, we can say

that Descartes had his share of philosophical opponents, but Hobbes stands out as one with whom his disagreements were both profound and extensive.

References

Adams, Marcus (2014), "The Wax and the Mechanical Mind: Reexamining Hobbes's Objections to Descartes' *Meditations*", *British Journal for the History of Philosophy* 22 (3): 403–24.

Agostini, Igor (2017), "Descartes, More, and the Infinity of the World", *British Journal for the History of Philosophy* 25 (5): 878–96.

Aubrey, John (1898), *Brief Lives, chiefly of Contemporaries, set down by John Aubrey, between the Years 1669 & 1696*, ed. Andrew Clark, 2 vols. Oxford: Oxford University Press.

Curley, Edwin (1995), "Hobbes *versus* Descartes", in Roger Ariew and Marjorie Grene (eds.), *Descartes and His Contemporaries: Meditations, Objections, and Replies*. Chicago: University of Chicago Press, 97–109.

Garber, Daniel (1992), *Descartes' Metaphysical Physics*. Chicago: University of Chicago Press.

Giudice, Franco (2016), "The Most Curious of Sciences: Hobbes's Optics", in A. P. Martinich and Kinch Hoekstra (eds.), *The Oxford Handbook of Hobbes*. Oxford: Oxford University Press, 149–68.

Hobbes, Thomas (1656), *Elements of Philosophy, the First Section, Concerning Body*. London: A. Crooke.

Hobbes, Thomas (1994), *The Correspondence of Thomas Hobbes*, ed. Noel Malcolm, 2 vols. Oxford: Oxford University Press.

Hobbes, Thomas (2012), *Leviathan*, ed. Noel Malcolm, 3 vols. Oxford: Oxford University Press.

Jesseph, Douglas (1999), *Squaring the Circle: The War between Hobbes and Wallis*. Chicago: University of Chicago Press.

(p. 628) Jesseph, Douglas (2006), "Hobbesian Mechanics", in Daniel Garber and Steven Nadler (eds.), *Oxford Studies in Early Modern Philosophy*, vol. 3. Oxford: Oxford University Press, 121–52.

Jesseph, Douglas (2016), "Hobbes on the Foundations of Natural Philosophy", in A. P. Martinich and Kinch Hoekstra (eds.), *The Oxford Handbook of Hobbes*. Oxford: Oxford University Press, 131–45.

Malcolm, Noel, and Jacqueline Stedall (2005), *John Pell (1611–1685) and his Correspondence with Sir Charles Cavendish*. Oxford: Oxford University Press.

Marion, Jean-Luc (2005), “Hobbes et Descartes. L’étant comme corps”, in Dominique Weber (ed.), *Hobbes, Descartes et la métaphysique*. Paris: Vrin, 59–77.

Mersenne, Marin (1644), *Universæ Geometriæ Mathematicæ Synopsis*. Paris: Antoine Bertier.

Mersenne, Marin (1933–88), *Correspondance*, ed. Cornelis De Waard, René Pintard, Robert Lenoble, Bernard Rochot, and Armand Beaulieu, 17 vols. Paris: PUF and CNRS.

Mori, Gianluca (2012), “Descartes, Hobbes, and Ideas: A Secret Debate”, *Journal of the History of Philosophy* 50 (2): 197–212.

Prins, Jan (1996), “Hobbes on light and vision”, in Tom Sorell (ed.), *The Cambridge Companion to Hobbes*. Cambridge and New York: Cambridge University Press, 129–56.

Shapiro, Alan (1973), “Kinematic Optics: A Study of the Wave Theory of Light in the Seventeenth Century”, *Archive for History of the Exact Sciences* 11: 134–266.

Sorell, Tom (1995), “Hobbes’s Objections and Hobbes’s System”, in Roger Ariew and Marjorie Grene (eds.), *Descartes and His Contemporaries: Meditations, Objections, and Replies*. Chicago: University of Chicago Press, 83–96.

Tuck, Richard (1988), “Hobbes and Descartes”, in G. A. J. Rogers and Alan Ryan (eds.), *Perspectives on Thomas Hobbes*. Oxford: Oxford University Press, 11–42.

Zepeda, Joseph (2013), “Descartes on Physical Vacuum: Rationalism in Natural Philosophical Debate”, *Society and Politics* 7 (2): 126–41.

Notes:

([1]) In the scholarship of the last few decades Adams (2014), Curley (1995), Marion (2005), Sorell (1995), and Tuck (1988) stand out.

([2]) Hobbes published *De Corpore* in 1655, producing an English translation, *Of Body*, in the following year. Although my quotations are from the 1656 English version, I follow standard practice and refer to both works as *De Corpore*.

([3]) For details of Hobbes’s optics, see Giudice (2016) and Prins (1996). Shapiro (1973) puts Hobbes’s optics in the context of other seventeenth-century research on the subject.

([4]) This analogy is developed in the “Second Discourse” of the *Dioptrics* (AT VI.93–105).

([5]) This is the first “hypothesis” in Hobbes’s *Tractatus opticus* that was published as Book VII of Mersenne’s *Optica* as part of his *Universæ Geometriæ Mathematicæ Synopsis* (Mersenne 1644).

([6]) On Hobbes’s idiosyncratic program for mathematics, see Jesseph (1999: ch. 3).

([7]) Prins (1996: 140) summarizes the doctrine: “Reflection is a change of the direction of the motion of light caused by resistance, a degree of hardness which in its turn is nothing but motion of the internal parts of the body concerned. An elastic, resisting body, such as a mirror, being acted on by light, will be dented. This indentation elicits an equally strong counter-movement aimed at the restoration of the old shape. This reaction goes with a change of direction in the motion of light, for whereas the horizontal component of the motion stays the same, the vertical component, that is, the downward movement, is neutralized and replaced by an opposite motion.”

([8]) Descartes quoted Hobbes as writing, “what does not yield to the slightest force cannot be moved by any force at all” (AT III.288). This principle also appears in *De Corpore*, Chapter XV, Article 3: “when a point is at rest, if it do not yield to the least *Impetus*, it will yield to none, and consequently it will be impossible that that which is at rest should ever be moved” (Hobbes 1656: 155).

([9]) Hobbes wrote: “the speed from A to B will not (according to my principles) be to the speed from A to G as 2 is to 3, but as √2 is to √5, which is the ratio of the lines AB to AG, and the same as the ratio of 2 to √10. For the speed from A to B is to the speed from A to G, not as the ratio composed from AH and HB to that composed from AH and HG, but as the ratio of the subtenses AB and AG, that is, the ratio between the roots of the squares of the subtended sides” (AT III.347).

([10]) For studies of Hobbes’s “Third Objections” and Descartes’s responses see Adams (2014), Curley (1995), and Sorell (1995). Mori (2012) argues that a letter of previously unknown authorship addressed to Descartes in May of 1641 (AT III.375–7) is due to Hobbes and covers much of the same material.

([11]) Hobbes actually raised sixteen objections to the *Meditations*, but many of them cover the same ground. The three claims I discuss here are his essential points of disagreement with the *Meditations*.

([12]) Hobbes defined philosophy as “such knowledge of Effects or Appearances, as we acquire by true Ratiocination from the knowledge we have first of their Causes or Generation: And again, of such Causes of Generations as may be from knowing first their Effects” (Hobbes 1656: 2). Because the subject of philosophy is “every Body of which we can conceive any generation”, Hobbes excludes from it “the doctrine of God, Eternal, Ingenerable, Incomprehensible, and in whom there is nothing neither to divide nor compound, nor any Generation to be conceived” (Hobbes 1656: 7).

([13]) I rely on the 1644 Latin version of Descartes’s *Principles* rather than the 1647 French version, despite the fact that the French version differs in some significant respects. It is clear that Hobbes read and critiqued the Latin version, but there is no evidence that he was acquainted with the French version.

([14]) Malcolm and Stedall (2005: 395). Aside from disliking Descartes’s writings, Hobbes was also convinced that his own work was reviled by Descartes. Writing to his friend Sa-

muel Sorbière in May of 1646 about plans to publish his treatise *De Cive*, Hobbes declared “if M. Descartes hears or suspects that a book of mine (this or any other) is being assessed for publication, I know for certain that he will stop it if he can. Please believe me on this one thing, for I do know” (Hobbes 1994: I.127).

([15]) The term ‘endeavor’ is Hobbes’s preferred translation of the Latin *conatus*, which was employed by Descartes and other seventeenth-century authors. Although the secondary literature on Hobbes generally uses the latter term, I have followed Hobbes’s English usage here.

([16]) These are listed as the first and second laws of nature at *Principles* II.37, 39 (AT VIIIA.62–3). Garber (1992: ch. 7) conducted an extensive study of these laws and their place in the Cartesian project.

([17]) See Garber (1992: ch. 8) for more details on the third law of nature and its consequences.

([18]) Hobbes claimed: “And yet, as a Point may be compared with a Point, so one Endeavour may be compared with another Endeavour, and one may be found to be greater or lesse then another” (Hobbes 1656: 151).

([19]) Impetus is defined as the sum of endeavor over a given (non-negligible) temporal interval; resistance is the endeavor directed against a body’s motion by another body that it encounters; force is the product of velocity and mass of a body. These are detailed in Chapter XV, Art. 2 of *De Corpore* (Hobbes 1656: 151–5).

([20]) As Hobbes put it, “if a point moved come to touch another point which is at rest, how little soever the *Impetus* or quickness of its motion be, it shall move that other point” (Hobbes 1656: 151).

([21]) See Jesseph (2006) and (2016) for an account of these principles and their role in Hobbes’s natural philosophy.

([22]) See Zepeda (2013) for an account of Descartes and the impossibility of a vacuum.

([23]) He was primarily interested in two arguments for a vacuum: one derived from Lucretius (according to which empty space is required for bodies to move) and another from Torricelli that characterized the space at the top of the “Torricellian tube” as a genuine void. Hobbes insisted that neither argument could rule out the existence of a very subtle fluid filling seemingly empty space, and he further objected that both attributed to bodies a spontaneous motion or a tendency toward motion.

([24]) The Cartesian distinction between the truly infinite (that pertains only to God) and the indefinite (a quantity that can be increased without limit) is drawn at *Principles* I.27, AT VIIIA.15. On Descartes’s argument for the indefinite extent of the world, see Agostini (2017).

([25]) See Jesseph 1999 (chs. 5, 6) for an account of Hobbes's increasingly hostile attitude toward analytic geometry.

Douglas M. Jesseph

University of South Florida

Henry More, Supporter and Opponent of Cartesianism

Jasper Reid

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Abstract and Keywords

Henry More was one of Descartes's earliest English supporters, but later became one of his most vigorous critics. This chapter explores the philosophical connections between the two, focusing particularly on their views on body and spirit. More regarded life, not thought, as the principal attribute of immaterial substance, and he increasingly rejected Cartesian mechanism in favour of a vitally animated physical world. The principal attributes of body were impenetrability and discerpibility (i.e. divisibility, though ultimately into indivisible atoms). Body could not be defined in terms of extension, More argued, because spirits were extended too, space was really distinct from body, and a vacuum was possible (though not actually existent).

Keywords: Henry More, mechanical philosophy, soul, body, void, atom

(p. 629) 1. More and Descartes

THE Cambridge Platonist, Henry More (1614–87), was one of the first people to propagate Cartesianism in England. Although certain individual English philosophers, such as Digby or Hobbes, were acquainted with Descartes and his opinions as early as 1637, More was among the first to discuss them in print, beginning with his *Democritus Platonissans* of 1646. Indeed, More may well have been the first person anywhere at all to use the words 'Cartesian' and 'Cartesianism', even before their French equivalents were introduced, using at least the former term as early as 1651 (see More 1651: 42, 151, 203; cf. Gabbey 1982: 171, 173, and n. 4).

More did have, it is fair to say, a complex relationship with Cartesianism. The general scholarly consensus about the nature of this relationship, at least until recently, was summed up by Marjorie Nicolson in her seminal 1929 article, "The Early Stage of Cartesianism in England": "From an almost abject discipleship, he passed to a period of questioning, though mingled with loyal defence, then, as his questions became more and more

unanswerable, to a period of doubt and disillusion, until finally he became almost as violent an adversary as he had been a partisan" (Nicolson 1929: 363). More recently, in a monumental (eighty-page!) article of 1982, Alan Gabbey has added nuance to this analysis. Gabbey's position is that most of the actual criticisms that More would ever raise against the Cartesian philosophy, even in his final major philosophical writings of the 1670s, had already been formulated and articulated—even directly to Descartes himself in their correspondence—during the period of his first engagement therewith in the 1640s. If the tone of More's discussions evolved over the course of his career, as Gabbey acknowledges that it did, this did not result from any substantial shift in More's philosophical opinions, so much as from a shift (p. 630) in his priorities. As far as Gabbey is concerned, More's philosophical system was already fully established by about 1660:

> the writings dating from before 1660 contain the bulk of his philosophical achievements: they tend to display the best of what is of philosophical interest in his total output. On the other hand, the writings of the post-Restoration period contain his most heavily theological and ecclesiastical exertions, in which the philosophy becomes diluted, playing a rather perfunctory apologetic role. In addition, where these writings are philosophical (as in *Enchiridion Metaphysicum*), they tend to repeat or to elaborate earlier themes and arguments, rather than to fulfill the promise of works written before More entered his theological phase.
>
> (Gabbey 1982: 173).

If those later philosophical writings (which would include 1668's *Divine Dialogues* as well as 1671's *Enchiridion*) contain More's most vehement denunciations of Cartesianism, Gabbey suggests that this is not because he came to feel that Cartesianism was incorrect on a theoretical level: he had judged it to be so all along. Rather, the difference was that he had formerly regarded Cartesianism as offering a firm support for religion, but now saw it as a threat thereto.

Whatever the reason, however, it is certainly true that More's tone did change dramatically, from gushing praise to vehement attack. But the goal of the present work will not be to explore More's general attitude to Cartesianism or the reasons behind it, so much as to explore the actual philosophy itself. Let us just briefly set the scene by summarizing the chronology of More's engagement with Descartes: much fuller details may be found in Gabbey's article.

More's first published philosophical work was in verse form, the *Psuchōdia Platonica* of 1642. The work drew heavily on the Neoplatonists, especially Plotinus, but showed no sign of any acquaintance with Descartes. At some point between the 1644 publication of Descartes's *Principia philosophiae* and the 1646 publication of More's next work, *Democritus Platonissans*, More discovered Descartes's book (possibly via John Allsopp, a former senior fellow at his own Christ's College, Cambridge: see Nicolson 1929: 361–2). In the original *Psuchōdia Platonica*, More had declared an infinite extension to be an impossibility: but Descartes convinced him otherwise. *Democritus Platonissans* takes *Principles* III.1–2 for an epigraph, wherein Descartes had defended his commitment to an unlimited

universe; and the chief purpose of More's work was indeed to argue for an infinitely large one, even going so far as to chide Descartes for mincing his words by claiming that it was merely "indefinite".

With Descartes still living, it was only natural that More should seek to engage him directly in correspondence. And so, with the facilitation of Samuel Hartlib and the encouragement of Ralph Cudworth (see Webster 1969, and Gabbey's "Avertissement" in AT V. 628–42), More did precisely that, ultimately sending Descartes four letters in 1648–9. Descartes sent proper replies to the first two, while a draft of a reply to the third was finally transmitted to More by Clerselier in 1655: but the correspondence was sadly cut short by Descartes's relocation to Sweden and his sudden death there in February 1650.

(p. 631) More's major works of the 1650s include: 1) *An Antidote Against Atheism* (1653), wherein he pledged firm allegiance to Descartes's Ontological Argument (though he never had any sympathy for the "Trademark" argument of the Third Meditation), as well as to a theory of innate ideas. 2) *Conjectura Cabbalistica* (1653), where he offered a threefold interpretation of the literal, moral, and philosophical meaning of the first three chapters of Genesis. More was satisfied that, once one managed to peer through the symbolism of the text of (as he believed) Moses himself, one would find a physical system entirely consistent with Descartes's own. 3) *The Immortality of the Soul* (1659), where More argued for a dualism of body and soul—though not the same dualism as Descartes's, as we will see shortly—as well as describing the condition of the immortal and (more controversially) pre-existent soul before and after its union to a terrestrial body.

These works and others—including More's own presentation of his correspondence with Descartes—were gathered together in 1662's *A Collection of Several Philosophical Writings*. In 1668, he produced two volumes of *Divine Dialogues*: but here he really did start to attack his former inspiration, and he continued in the same vein in 1671's *Enchiridion metaphysicum*. In those works, among other things, More laid out his theory of space and spiritual extension, sought to show the inadequacy of the mechanical philosophy, and presented his own alternative physical theory. A few other philosophical works did follow, in amongst a lot of theology; and, in 1679, there was a Latin edition of More's collected philosophical writings with additional notes and scholia (also reprinted in the 1712 edition of the 1662 collection, More 1712) wherein he identified several points on which he had changed his mind since the works were originally composed.

2. Mechanical Philosophy

The area where the tone of More's comments on Descartes changed the most starkly concerned his commitment to mechanical explanations of natural phenomena. Among the Cartesian contributions that More singled out for special praise in his philosophical poems, alongside Descartes's treatment of the size of the universe, he also cited his mechanical accounts of optics and the marine tides. During this first flush of his enthusiasm for Descartes, and regarding his physics as a revival of the lost natural philosophy of Moses himself, More saw it as "the most admirable Philosophy, that ever yet appeared in

these *European* parts since *Noahs* floud" (More 1650: 88; see also More 1712 [1653]b: 114). As Gabbey rightly observes, More did always feel that the mechanical approach was somewhat more limited in scope than its own author had believed. Nevertheless, his early attitude was that *most* purely physical interactions could be adequately explained mechanically.

As time went by, however, More came to regard more and more in the physical world as inexplicable through mechanical principles alone. Chapters 11 to 25 of *Enchiridion metaphysicum* survey a wide range of natural phenomena—encompassing both optics and the tides, alongside gravity, hydrostatics, magnetism, meteorology, etc.—arguing (p. 632) that *none* of these things could be explained mechanically after all. More's ultimate conclusion was that, as a matter of fact, "there is no *Phaenomenon* in Nature purely mechanical" (More 1713 [1668]: 16; see also viii). Instead, at least from 1659 onwards, he referred such phenomena to the action of the "Spirit of Nature" or "Hylarchic Principle". He conceived this as an immaterial spirit that permeated the entire universe, regulating the behaviour of physical objects. It was a created substance, distinct from God, but it was programmed by God to enact his providential plan for the world, and to do so in non-mechanical ways. And yet it also did these things without any conscious awareness of what it was doing, and without the freedom to choose to do anything else instead.

Just as More was increasingly coming to regard the mechanical philosophy as explanatorily inadequate, he was also coming to regard it as theologically dangerous. If the physical world was able to regulate itself, without the involvement of immaterial spirits—be they created or divine—there would no longer be any real need to countenance the existence of such spirits at all, or at any rate no longer any possibility of arguing from the manifest design of the world to the wisdom of its creator. More knew that Descartes himself was not an atheist, and sought to defend him against such a charge in his *Epistola ad V.C.* (written around 1658, published 1662). Indeed, he continued to feel that Cartesian mechanism should be taught in the universities, despite his own increasing misgivings about it. But this was not to persuade the students of its adequacy as an account of physical reality. Rather the opposite: he hoped that, by recognizing its *inadequacy*, they might be better persuaded of the theoretical need for such spiritual principles (More 1712 [1659]: xiii, xvi; on More's evolving attitude to the mechanical philosophy and his theory of the Spirit of Nature, see Gabbey 1982; Gabbey 1990; Reid 2012: chs. 8–9).

But the Descartes whom More initially revered and later renounced was very much the natural philosopher embodied by the *Principles of Philosophy*, as opposed to the author of the "jocular *Metaphysical Meditations*" (More 1995 [1671]: I.98). The Ontological Argument aside, even the early More found little or nothing of value in Descartes's more directly metaphysical writings: "And therefore *Des-Cartes*, whose Mechanical Wit I can never highly enough admire, might be no Master of *Metaphysicks* to me" (More 1712 [1653]a: 3; see also More 1995 [1671]: I.IV–V). For instance, More simply scoffed at Descartes's argumentative appeal to hyperbolic doubt: "as for perfect *Scepticism*, it is a disease incurable, and a thing rather to be pitied or laugh'd at, than seriously opposed" (More 1712 [1659]: 2). And More never embraced Cartesian dualism. Which is

not to say that he did not eventually come to be a dualist: the point is rather that More's dualism was in no respect Cartesian.

3. More's Early Monism

In his earliest writings, written while still intoxicated with Neoplatonism, More was not a dualist at all. He regarded the world as a smooth hierarchy of emanations from an eminently spiritual God. Each creature owed its entire being to its source, and would (p. 633) therefore need to resemble its source to some degree: nothing else could provide it with attributes but God, and God did not have any attributes to give besides those he already had himself. Those creatures that were closer to God would manifest themselves more spiritually, while bodies were the furthest and least adequate imitations of his nature—and yet they differed only in degree, not in kind.

It followed that, if by 'body' one meant something wholly passive, with no vitality whatsoever, then there could be no such thing. And so, in the original 1642 poems, More observed that he had never meant to grant the existence of a "mere body": for all was life, all spirit (More 1967: 114). Or again, in 1646, he claimed that a body was really just a fixed and thickened spirit, on the grounds that everything was life and energy from God (More 1967: 92; see also 160). Only a couple of years later, More put the same point to Descartes directly: "all that is called 'body' is really a stupefied and sottish life, inasmuch as, though it has neither sensation nor animadversion, it constitutes the last and faintest shadow and image of the divine essence, which I take to be the most perfect life" (AT V. 383, my translation).

Descartes, however, was unimpressed:

> You add that body seems to you to be "alive with a stupid and drunken life". This, I take it, is just a fine phrase; but I must tell you once for all, with the candour which you permit me, that nothing takes us further from the discovery of truth so much as setting up as true something of which we are convinced by no positive reason, but only by our own will. This is what happens when we have invented or imagined something and afterwards take pleasure in our fictions, as you do in your corporeal angels, your shadow of the divine essence, and the rest. No one should entertain any such thoughts, because to do so is to bar the road to truth against oneself. (AT V.405/CSMK 382)

On finally receiving this fragment in 1655, More wrote to Clerselier, now making it clear that his metaphors were not meant to be taken *too* literally. And yet, at the same time, he was still prepared to repeat and to defend the same basic idea, that bodies needed to have some minimal degree of life, because they owed their being to a God who was life itself. (See AT V.645–7; Gabbey 1982: 212–3).

However, More subsequently pulled back from this position, and he did end up becoming every bit as staunch a dualist as Descartes. Even as he was making this shift, two of his

closest friends—Anne Conway and Francis Mercury van Helmont—were jointly developing a kabbalah-inspired system of gradual monism similar to his own early account, at least to the extent that there were no such things as bodies in the strict sense, but only spirits of greater or lesser degrees of perfection. “Since dead matter does not share any of the communicable attributes of God, one must then conclude that dead matter is completely non-being, a vain fiction and Chimera, and an impossible thing” (Conway 1996 [1690]: 45–6). But More wrote directly against his friends’ opinion, having finally become extremely concerned about this blurring of the line between minds and bodies. For reasons not worth getting into here, he now saw in this “corporeo-spiritual” system the dangers of polytheism, materialism, and atheism, all wrapped up into one, and he endeavoured to demolish it in a Latin tract, *Fundamenta philosophiae* (1679). (p. 634) Certainly by the 1670s, and arguably by the mid- to late 1650s, More had become satisfied that there were two essentially distinct kinds of created substance after all: minds and bodies (see Coudert 1975; Crocker 2003: chs. 11–12; Reid 2012: ch. 7).

And yet the terms in which More’s own mature dualism was drawn up were very different from Descartes’s, and this was true on both sides of the coin.

4. Life and Spirit

The first thing that sets More’s mature position apart from Descartes’s is that More never gave up on the notion that life—as opposed to thought—should be regarded as the principal attribute of a spirit. As early as 1642, he was defining it as a “self-moving substance” (More 1967: 48); and as late as 1671 he was *still* defining it as an “immaterial substance intrinsically endowed with life and the faculty of moving” (More 1995 [1671]: I. 118). Whereas a body could at best just pass on a motion it had passively received from an external source, a spirit had an intrinsic active power to introduce brand new changes into the universe. It was simply in the nature of a spirit that it should have the capacity to gather individual atoms together and organize them into various macroscopic forms, and then to move the resulting bodies from place to place: “The very nature of the Soul, as it is a Soul, is *an aptitude of informing or actuating a Body*” (More 1712 [1653]b: 223).

Descartes believed that a created mind could not exist without actually thinking, thought being its very essence, the principal attribute that defined it as a mind in the first place. But More’s alternative account of the nature of the soul entailed two things. First, it meant that he was completely unmoved by the supposed mind–body problem, of how an immaterial spirit could causally affect a material body. For More, to be able to affect a body was just *what it was to be* a spirit, a power no more mysterious to him than the soul’s ability to think was to Descartes. Second, it followed that no created spirit would ever be entirely disembodied, a conclusion he was entirely comfortable to embrace: “Wherefore it is plain that the nature of the Soul is such, as that she cannot act but in dependance on *Matter*, and that her Operations are some way or other always modified thereby. And therefore if the Soul act at all after death, (which we have demonstrated she does) it is evident that she is not released from all *vital union* with all kind of *Matter*

whatsoever" (More 1712 [1659]: 159–60). Even angelic souls were united to matter of some kind: the difference between an angel and a human being lay simply in the fact that, whereas a human soul would (at least for a while) find itself united to a terrestrial body, an angelic spirit would only ever be united to an aerial or aethereal one.

Of course, More did allow that *some* spirits could think: but he felt that the class of immaterial spirits extended far more widely than just the rational minds alone. Even in his correspondence with Descartes, he argued that animals were more than just machines. (See Cohen 1936, which translates the relevant portions of their respective letters—More's side of the conversation being absent from the CSMK edition—with commentary). Where Descartes believed that animal behaviour could be adequately (p. 635) explained in terms of matter in motion and purely mechanical responses to physical stimuli, More felt that such behaviour required the postulation of an immaterial soul, endowed with the powers of sensation, memory, and perhaps even some basic reasoning.

But the spiritual class extended further still, and encompassed beings that possessed no thought whatsoever, not even sensual perception. More did not feel, for instance, that the mechanical philosophy had the resources to explain the functioning of plant life, or even to explain the forms and behaviour of certain ostensibly inanimate bodies (such as stars and planets). Consequently, he proposed that such bodies should be animated by immaterial seminal forms. In his initial account, each plant would get a seminal form of its own; but later, with the introduction of the Spirit of Nature as a universal seminal form, More effectively turned the entire physical world into a single gigantic plant, and the separate seminal forms of this or that individual plant came to be sidelined as redundant. More continued to maintain that humans (and animals) did need distinct spirits of their own: from 1642's *Antimonopsychia* to at least *The Immortality of the Soul* (book 3, ch. 16), he argued against the Averroistic doctrine that the intellectual souls of different people were all really one, differentiated only by the matter to which this single world-soul was variously united. The functions of plant bodies, however, came to be collectively handed over to the Spirit of Nature, alongside gravity, magnetism, and the rest.

5. Material and Immaterial Extension

Over on the other side of More's dualism, we also find a difference with Descartes. Descartes had defined body simply in terms of extension, but for More this was not going to suffice because he felt that both material bodies *and* immaterial spirits were extended. There was, however, an important shift in the details of precisely how he articulated this opinion over the course of his career.

In the correspondence with Descartes, More claimed that God and angels were extended. He observed that Descartes himself had claimed that God impressed motion onto matter, but he argued that God could not have done this unless he "closely touched the matter of the universe". This, however, "he certainly could never have done, if he was not present everywhere, and occupied each individual place. God is therefore extended or expanded in his own manner, and thus is an extended being" (AT V.238–9). As to what God's "own

manner" of being extended amounted to, however, More there fell back on a traditional Neoplatonic (and scholastic) formula, whereby God was "whole in the whole and whole in each part" of the material world. As he clarified in his next letter: "since God, to the extent that the human mind grasps him, is whole everywhere, and his whole essence is present in all places or spaces, and in all points of space, it does not follow that he has parts outside parts" (AT V.305). But "parts outside parts" had traditionally been precisely what the term 'extension' *meant*. More's God was, at this time, extended only in the very loosest of senses.

(p. 636) But More subsequently changed his mind. When he prepared the correspondence for inclusion in his own *Opera* of 1679, he added a note to this particular remark to say: "Of course, the bulk of philosophers speak in this way. As for me, though, for my part I feel that, although God does not have physical parts, properly so called, it is nevertheless extremely improper to say that God can be whole everywhere" (More 1712 [1662]: 83). More first started to argue against his own former opinion in 1659's *The Immortality of the Soul*, his fullest refutation thereof appearing in 1671's *Enchiridion metaphysicum*. In the final pair of chapters of the latter work (chapters 27 and 28), More argued against two accounts of the relation of spirits to the spatial world, before presenting his own mature theory of immaterial extension. He called one of these theories "nullibism" (from the Latin for "nowhere"), and he attributed it to Descartes: this was the view that immaterial substances were not spatially present anywhere. But More developed the same complaint he had already presented to Descartes directly, that God and created spirits simply would not be in a position to act on spatial things unless they themselves were present where their patients were. He called the other "holenmerianism" (from the Greek for "whole in parts"). Against that—while glossing over the fact that it had once been his own opinion—he argued that, if the whole of a spirit was present in one part of space, then there would quite simply be none left to be present in any other. Besides, to the extent that parts-outside-parts extension would render a substance susceptible to division into several parts—which he now denied anyway—this alternative mode of presence would, by the same token, render it susceptible to division into several wholes, which would scarcely suit the essential unity of a spirit any better (see Reid 2012: ch. 5; Leech 2013: chs. 3, 7, 8).

As far as More was now concerned, extension—in the strict sense of possessing parts outside parts—was contained in the notion of substance as such, before any thought of a differentiation into material and immaterial substance. In the *Divine Dialogues*, the character of Hylobares observed that, "as that admired Wit *Des-Cartes* solidly concludes, *Extension is the very Essence of Matter*". But Philotheus, replying on More's own behalf, described this as "but an upstart conceit of this present Age", and declared on the contrary that "*Extension* or *Amplitude* is an intrinsecal or essential Property *Ens quatenus Ens*, as the Metaphysicians phrase it" (More 1713 [1668]: 49).

Even if the two kinds of substance were both extended, however, they did still differ in the precise nature of their respective extensions and parts. First, in the case of material substance, those parts would be separable from one another. Each such individual part was a real material substance in its own right, and they would collectively form a larger

material substance only through the efficacy of a distinct spirit, acting to hold them together. By contrast, it would involve a contradiction that an immaterial substance should ever be divided. Although we could consider its various spatial regions separately in our thoughts, and that might indeed be regarded as a kind of mental division, they could not be separated in reality. To sidestep any ambiguity, More avoided the term 'indivisibility' and introduced the term 'indiscerpibility' to capture this impossibility of *actual* separation. When Philotheus informed Hylobares that an immaterial substance (p. 637) was extended, and the latter complained that "*quatenus* extended it must be divisible", Philotheus explained: "It is true, it is *intellectually* divisible, but *Physically* indiscerpible" (More 1713 [1668]: 64).

Second, More maintained that material substances were impenetrable in the sense that no two such substances could exist in the same place at the same time. But immaterial substances were penetrable. An immaterial substance could exist in the same place as a material one, not merely by insinuating itself into its pores, but by intimately sharing its own proper dimensions throughout. When a soul animated a body, the former would thus permeate the latter, and the body would travel around wherever the soul willed to carry it. Moreover, More believed that immaterial substances were penetrable not only with respect to bodies but even to one another. Such was the situation in cases of demonic possession: there would then be several overlapping souls, all permeating a single body and vying for control over it.

And so, having defined spirit in terms of this combination of indiscerpibility and penetrability, alongside intrinsic vitality, More could define body quite simply by the "rule of contraries" by negating each of these three things: bodies were discerpible, impenetrable, and utterly lifeless, purely passive. (See More 1712 [1659]: 8–9; 1713 [1668]: 61, 64; 1995 [1671]: I.117–19. For discussion, see Reid 2012, especially ch. 6).

6. Void and Space

When it came to the finer details of the structure of physical reality, More also differed from Descartes on several crucial points. Descartes, believing that extension was the principal attribute of matter, had been firmly committed to the logical impossibility of any kind of immaterial extension, and in particular to that of a vacuum. He further believed that the material plenum should be both indefinitely large, and indefinitely divisible to ever smaller sizes. On each of these issues, More's position was either diametrically opposed to Descartes's, or at any rate not the same as it.

As regards the size of the material world, we have already noted that More changed his mind in the 1640s, initially regarding it as finite before being persuaded by Descartes that it was infinite. But then, as it happens, he went and changed his mind again: at least by the 1670s, he had come to the conclusion that it was finite after all (see Reid 2012: 57–63).

As for a vacuum, More did have a slightly more consistent position—but nevertheless a nuanced one. He accepted that the material world was *actually* a plenum, but he insisted that a vacuum was nevertheless *possible*. Descartes had suggested that, if God should remove the contents of a vessel without replacement, the sides of the vessel would have to touch (AT VIIIA.50/CSM I.231). But More asked him: "If God impresses motion onto matter, as you earlier claimed, could he not push against the sides of the vessel and inhibit their coming together?" (AT V.240–1). With nothing to resist it from within, More did accept that the pressure from the matter impinging on the sides from without (p. 638) would naturally force them together. He merely insisted this collapse would arise through a *natural* necessity, such that God could yet intervene to overcome it: it was not the kind of *logical* necessity that might tie even God's hands (AT V.241).

Such miraculous interventions aside, however, More's world was indeed a plenum. Elsewhere in the correspondence, he offered a theological argument for this, based on the overflowing power of God: "surely the divine fecundity, which is nowhere idle, has produced matter in every place, missing out not even the very narrowest of gaps" (AT V.309). It would be unbecoming to the omnipotent creative power of God for him not to exercise it to the fullest possible degree. And More did not waver in this view thereafter. In the definitive statement of his most mature physical and metaphysical system, *Enchiridion metaphysicum*, he was still committed to the same position he had developed in the 1640s. On the one hand, he continued to maintain that "all things are full of bodies" (More 1995 [1671]: II.23). On the other hand, he also continued to insist on the possibility of a vacuum. He wrote of Descartes that "he himself reckons among the most important [principles] this very one which I have so sedulously attacked, namely, That it certainly cannot be made by the divine power that there be any intervening space in the universe which is not indeed matter or body. Which opinion I have always deemed to be false, now indeed I attack it more sharply than usual as being little pious" (More 1995 [1671]: I.44). More became increasingly concerned that to say it was logically necessary that the material world should exist as a plenum was dangerously close to saying that it was logically necessary that the material world should *exist*, independently of God.

We should remember that More had, by this time, also come to the conclusion that the material world was only finitely large: his claim that all things were full of bodies was only supposed to apply *within* its boundaries. However, More also believed that, beyond those boundaries, a void space was not only possible but actual, extending infinitely further out in all directions. And it was in this same work (though building on earlier discussions, especially in the first of the *Divine Dialogues*) that More offered his fullest treatment of such an immaterial space.

As we saw above, he felt that the essence of material extension consisted in impenetrability and discerpibility, and he was perfectly comfortable—especially once he cast off his early holenmerianism—with the notion that a vital spirit like God or the human soul might possess a penetrable and indiscerpible extension that could intimately permeate a body and share its own internal place. It was this same notion of immaterial extension that allowed More to postulate a space, underlying and penetrating the entire material world,

that was not only infinite but also continuous and unbroken. Wherever there was a void—whether beyond the furthest boundary of a finite world, or miraculously even within it—an immaterial and purely geometrical spatial structure would still be found. Moreover, even where there *was* a body, a region of such space would *still* be found. Unlike the void of the classical atomists, which only subsisted in the gaps between their atoms, More's space could quite happily penetrate bodies, and it would thereby provide them with their places.

(p. 639) Descartes had defined both place (whether "internal" or "external") and motion/rest in terms of the relations between a body and its immediate surroundings. For a body to move was for it to relinquish contact with one set of bodies and become contiguous to another (AT VIIIA.45–56/CSM I.227–35). More disagreed. He imagined a transparent, solid glass cylinder, with a red line marked diagonally from the centre of one end to a point on the circumference at the other. When the cylinder was held stationary, one would simply see a line. However, when it was made to rotate on its axis, the line would spin with it, and would begin to describe the appearance of a red cone. But More felt that Descartes could not distinguish between the two cases. In both, the particles that constituted the line were remaining at rest in relation to the immediately contiguous particles of glass. For Descartes, therefore, they were at rest *tout court*. How then to explain the visible difference between the stationary line and the apparent cone? Moreover, having thus dispatched the suggestion that an object's motion or rest should be defined in relation to its immediate corporeal surroundings, More further argued that they could not be defined in relation to more distant bodies either, such as the observer or the fixed stars. An object's motion, he insisted, should be referred to those places through which it actually moved, not to places it might never even reach. Besides which, any change in the distance between the object and the fixed stars would be caused by the motion of the object, and therefore could not determine it (More 1713 [1668]: I.52–3, 57–61, 1995 [1671]: I.41–3, 48–50). More's conclusion was that there needed to be a penetrable space through which a body could move, by successively occupying different regions thereof, and that it was in relation to this space that true motion should be defined. Furthermore, because this space was not only penetrable but also indiscerpible, its various parts all eternally locked in an immutable order amongst themselves, such a definition would give an absoluteness to motion that Descartes could not establish. Although More did not actually use the phrase 'absolute space', there are several clear connections between his position and the more familiar one developed shortly afterwards by Isaac Newton, who knew More not only through his works but personally too. (In fact, More appears to have been the only figure who engaged on a personal level with both Descartes and Newton).

More's space qualified as immaterial on the basis of that penetrability and indiscerpibility. But he went further. He argued that such space was actual, not merely potential as he had suggested in some of his earlier works. (See More 1995 [1671]: I.51–2; and, in More 1712 [1653]a, compare 200 with the later note at 230). As already noted, it was also infinite, extending even beyond the outermost boundary of a finite material world; and its indiscerpibility further entailed that it was immutable. More even argued that it was eternal and uncreated. Ultimately, he had little option but to declare it divine. When he con-

sidered the properties of space, he found that many of them could not apply to creatures: God alone could be infinite, uncreated, and so forth. Space, therefore, would need to be some kind of attribute of the deity (a sentiment that Newton also shared). For More, space was "the *permanent Expansion* or *Amplitude* of the *radical Essentiality* of *God*" (More 1713 [1668]: 289; and see More 1995 [1671]: 57–61).

(p. 640) Alan Gabbey has claimed—as quoted at the start of the present chapter—that very little was new in More's philosophical system after about 1660. But these claims about the divinity of space only really start to appear in 1668 and 1671. On the one hand, although More had always claimed—even in his letters to Descartes—that God was extended in *some* sense, he had still been understanding that so-called extension in holenmerian terms. He first started to object against holenmerianism in 1659–62—but it was only in the *Divine Dialogues* and *Enchiridion metaphysicum* that he fully developed his more positive alternative account, whereby God really did have parts outside parts, albeit indiscerpible and penetrable ones befitting his immateriality. On the other hand, it was also not until these same works that More properly established his theory of an indiscerpible and penetrable space distinct from matter. And it was only then, once he had both the extension of God and the extension of space properly in place, that he came to realize that these were not *two* actual, infinite, indiscerpible, and penetrable extensions after all: they were one and the same. (On More's mature theory of divine real space, see Koyré 1957: chs. 5–6; Reid 2012: ch. 4, and ch. 6, §§5–6; Leech 2013: ch. 9).

7. Atoms

Finally, More also disagreed with Descartes on the divisibility of matter: More was firmly committed to atomism, and not only as a physical necessity but as a logical one. As we have seen, it was essential to matter that it should be discerpible; but More believed that there was a limit to this, a minimum size beyond which no further division would be possible. Particles at that minimum size would therefore be indiscerpible, and as such would qualify as atoms. (It followed that, strictly speaking, an individual atom could not be regarded as material. Given that More did still think that it would be impenetrable, it could not properly be regarded as immaterial either. More seemed comfortable with this).

Descartes had argued that, simply by considering the concept of extension as such, we could clearly and distinctly conceive of the division of any body, no matter how small, into even smaller parts. But he felt that whatever could be clearly and distinctly conceived in the mind should also be possible in reality. Even if God was to make it such that certain very small particles could not be divided by any natural forces, he could not diminish his own infinite power to divide them (AT VIIIA.51–2/CSM I.231–2).

But More came at things from the other side, and argued that God's omnipotence actually *entailed* atomism. As infinite (or indefinite) divisibility had traditionally been construed, since at least Aristotle, it could only ever be a potentiality. The process of dividing and subdividing a body infinitely many times could never actually reach an end, precisely because it was infinite: there was no end there to be reached. We could carry on dividing as

far as we liked, to generate smaller and smaller parts, but we—or, for that matter, God—would never arrive at the ultimate smallest parts of the body. More's own attitude, however, was that a God whose power was *actually infinite* ought to be able (p. 641) to complete any process *in actuality*, even if it involved infinitely many steps. He argued this as early as his original 1642 batch of poems (More 1967: 51), and he put the same point to Descartes directly in his first letter (AT V.241–2). In response, Descartes simply fell back on his usual line that God could do more things than his finite intellect could conceive, but that this did at least strike him as involving a contradiction (AT V.273–4/CSMK 363–4). Maybe so, but More had no problem with the idea.

Allowing this assumption about God's power to actualize the infinite, let us suppose that he takes a finitely large body and actually divides it infinitely many times, doubling the resulting number of parts at each step. When he completes this infinite process, he will then be left with infinitely many parts. But (here falling back on the arguments of the classical atomists) More observed that these parts could not be individually unextended, for then the whole lot of them joined together—that is, the original body—would be unextended too, contra the assumption. And they could not be individually extended either, for then the original body must have been infinitely large, again contra the assumption. To resolve the dilemma, More concluded that matter could not be infinitely divisible. The contradiction, for More, lay not in the notion of God's completing an infinite process, but rather in the suggestion that this particular process was infinite. God could still actually complete the process of dividing a finitely extended body as far as such division was possible: but he would in fact do so after only finitely many steps, thereby yielding parts that really were extended, each one a certain finite fraction of the total, but each such that no further division was possible. (See More 1967: 51, 148–50, 1712 [1653]a: 15, 143–4, 1712 [1659]: iii–iv, xiv–xv, 20, 1995 [1671]: I.71–2).

References

Cohen, Leonora D. (1936), "Descartes and Henry More on the Beast-Machine", *Annals of Science* 1: 48–61.

Conway, Anne (1996 [1690]), *The Principles of the Most Ancient and Modern Philosophy*, ed. Allison P. Coudert and Taylor Corse. Cambridge: Cambridge University Press.

Coudert, Allison (1975), "A Cambridge Platonist's Kabbalist Nightmare", *Journal of the History of Ideas* 36: 633–52.

Crocker, Robert (2003), *Henry More, 1614–1687: A Biography of the Cambridge Platonist*. Dordrecht: Kluwer.

Gabbey, Alan (1982), "Philosophia Cartesiana Triumphata: Henry More (1646–1671)", in T. M. Lennon, J. M. Nicholas, and J. W. Davis (eds.), *Problems of Cartesianism*. Kingston and Montreal: McGill-Queen's University Press, 171–250.

Gabbey, Alan (1990), “Henry More and the Limits of Mechanism”, in Sarah Hutton (ed.), *Henry More (1614–1687): Tercentenary Studies*. Dordrecht: Kluwer, 19–35.

Koyré, Alexandre (1957), *From the Closed World to the Infinite Universe*. Baltimore: Johns Hopkins Press.

Leech, David (2013), *The Hammer of the Cartesians*. Leuven: Peeters.

More, Henry (1650), *Observations upon Anthroposophia Theomagica, and Anima Magica Abscondita*. “Parrhesia”: O. Pullen.

More, Henry (1651), *The Second Lash of Alazonomastix*. Cambridge: Printers to the University of Cambridge.

(p. 642) More, Henry (1712 [1653]a), *An Antidote Against Atheism*, in *A Collection of Several Philosophical Writings*, 4th edition. London: Joseph Downing.

More, Henry (1712 [1653]b), *Conjectura Cabbalistica*, in *A Collection of Several Philosophical Writings*, 4th edition. London: Joseph Downing.

More, Henry (1712 [1659]), *The Immortality of the Soul*, in *A Collection of Several Philosophical Writings*, 4th edition. London: Joseph Downing.

More, Henry (1712 [1662]), *Epistolae quatuor ad Renatum Des-Cartes*, in *A Collection of Several Philosophical Writings*, 4th edition. London: Joseph Downing.

More, Henry (1712), *A Collection of Several Philosophical Writings*, 4th edition. London: Joseph Downing. [Each part has its own separate pagination.]

More, Henry (1713 [1668]), *Divine Dialogues*, 2nd edition. London: Joseph Downing.

More, Henry (1967), *The Complete Poems*, ed. A. B. Grosart. New York: AMS Press.

More, Henry (1995 [1671]), *Manual of Metaphysics*, trans. A. Jacob. Hildesheim: Georg Olms.

Nicolson, Marjorie (1929), “The Early Stage of Cartesianism in England”, *Studies in Philology* 26: 356–74.

Reid, Jasper (2012), *The Metaphysics of Henry More*. Dordrecht: Springer.

Webster, C. (1969), “Henry More and Descartes: Some New Sources”, *British Journal for the History of Science* 4: 359–77.

Jasper Reid

King’s College London

Cavendish vs. Descartes on Mechanism and Animal Souls

Hadley Cooney

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Abstract and Keywords

In the *Discourse on the Method*, Descartes attempts to prove that animals are mere machines, lacking reason and, by extension, consciousness. This chapter explores the response to this position offered by Margaret Cavendish in her 1664 *Philosophical Letters*. Following a reconstruction of the analogical argument Cavendish constructs to refute the Cartesian position, there is an examination of Cavendish's metaphysical views in contrast to Descartes's, revealing the sharp divide between these two thinkers on questions related to the nature of matter, the intelligibility of mechanical explanations in nature, the proper conception of reason, and the relationship between human beings and the natural world.

Keywords: Margaret Cavendish, rationality, animal soul, mechanism, natural world

(p. 643) THE question of animal souls was widely debated throughout the seventeenth and eighteenth centuries, for a variety of philosophical and theological reasons. One of the most notorious positions in this debate was Descartes's view that animals do not have souls, and that they function like machines. Although not entirely original to Descartes,[1] this view came to be associated with him and with his philosophical program, and many prominent Cartesians, including Antoine Arnauld (1612–94) and Nicolas Malebranche (1638–1715), later took it up as part of their systems. The thesis, although extraordinary, is simple. In the words of one commentator, it amounts to the claim that "there is nothing going on in beasts that isn't observable physiologically, from the outside" (Wilson 1995: 7). In modern parlance, there is nothing that it is *like* to be an animal; humans alone among natural creatures are rational and conscious.

In spite of its many adherents, this doctrine also provoked significant controversy following its publication in the *Discourse on the Method* (1637). Strangely, many of the objections to the *Meditations*, collected by Mersenne and published alongside Descartes's replies in the earliest edition of the work, concern animal automatism, although it is nowhere mentioned in that text. Arnauld, who would later adopt the view, at first called it

"incredible" and worried that "it will not succeed in finding acceptance in people's minds unless it is supported by very solid arguments"—arguments, it seems, he did not believe Descartes had yet provided (AT VII.205/CSM II.144). The authors of (p. 644) the Sixth Objections worried further that if animals could be shown to be mere automata, then the same might also be said of human beings (a position which Julien Offray de La Mettrie would go on to develop in the eighteenth century). Descartes would continue to answer objections to the view in correspondence for the rest of his life.

While many of these objections have received ample treatment in the literature, less is known about the objections raised against the view by Margaret Cavendish (ca. 1623–73) in her *Philosophical Letters* (1664). Cavendish's objections to the animal automatism thesis, as Descartes presents it in the *Discourse*, are interesting in their own right, and worthy of more attention than they have thus far received in the literature.[2] But in fact, her rejection of this position pervades much of her thought. As such, thinking about Cavendish contra Descartes on the question of animal souls can be a particularly enlightening point of entry into Cavendish's philosophical system. With her distinct conception of perception and reason, her rejection of mechanical explanations, and her refusal to sharply separate human beings from the natural world, Cavendish offers a compelling response to the Cartesian program that has no exact parallel in the seventeenth century. In this chapter I will explore these elements of Cavendish's philosophy by reading her alongside Descartes on the issue of animal souls, for as Cavendish herself suggests, "two opposite things placed near each other, are better discerned" (Cavendish 1664: 1.1).[3]

1. Descartes's "Monstrous Thesis": The Denial of Animal Souls

While medieval and early modern scholastics had argued that vegetative and sensitive souls were required to account for an organism's vitality, nutrition, and perception, Descartes counters that these life processes can be explained entirely mechanically, without reference to spiritual or occult entities.[4] In Descartes's view, scholastic explanations of vital processes in terms of souls tend to obscure the very phenomena they purport to describe; mechanical explanations, on the other hand, offer real hope of a scientific understanding of life. Drawing an analogy between organic bodies and the hydraulic statues in the royal fountains at Saint Germain-en-Laye,[5] Descartes suggests that corporeal functions including

(p. 645)

> the digestion of food, the beating of the heart and arteries, the nourishment and growth of limbs, respiration, walking and sleeping, the reception by the external sense organs of light, sounds, smells, taste, heat, and other qualities, the imprinting of the ideas of these qualities in the organ of the "common" sense and the imagination, the retention or stamping of these ideas in the memory, the internal movements of the appetites and the passions, and finally the external movements

> of all the limbs … follow from the machine's organs every bit as naturally as the movements of a clock or other automaton follow from the arrangement of its counter-weights and wheels. (AT XI.202/CSM I.108)

Human bodies, like all other organic bodies in nature, function like machines. However, anticipating a later objection,[6] Descartes argues that mechanism is not sufficient as an account of all human behavior, as human beings are not just material bodies but are also joined to immaterial souls.

As is well known, on the Cartesian picture the world is made up of two distinct substances, material bodies whose essence is extension and immaterial minds whose essence is thought. The radical distinction Descartes draws between these substances entails that matter cannot possess mental properties, just as incorporeal substances cannot possess material properties. However, in the case of the human being, these two substances are joined together in a close union in which they interact. When explaining a good deal of human behavior, therefore, we must take account of both substances. As Descartes puts the point, when he considered the mechanical body alone, he "could find none of the functions which, depending on thought, are the ones that belong to us as men; though I found these later on, once I had supposed that God had created a rational soul and joined it to this body" (AT VI.46/CSM I.134).

Since souls are required only to account for rational processes such as thought and voluntary motion, and not vitality or corporeal sensation and perception, for Descartes the question of animal souls is transformed into a question concerning whether or not animals are rational and in possession of a thinking soul. Descartes will eventually determine that they are not: "I investigated very carefully whether [animal] movements originated from both of these principles or one only. I soon perceived very clearly that they could all originate from the corporeal and mechanical principle, and I regarded it as certain and demonstrated that we cannot at all prove the presence of a thinking soul in animals" (AT V.276/CSMK 365). I will examine some of Descartes's arguments for this claim below, but first I want to say a little bit about what his denial of immaterial souls to animals entails.

(p. 646) Descartes does not deny that animals are alive; nor does he claim that they do not have any perceptions or sensations whatsoever.[7] But he is clear that animals only have perception and sensation "insofar as it depends on a bodily organ" (AT V.279/CSMK 366). It can be difficult to parse out exactly what he means by this. At one point, he compares animal perception and sensation to human inattention, writing to one correspondent that "my view is that animals do not see as we do when we are aware that we see, but only as we do when our mind is elsewhere. In such cases the images of external objects are imprinted on our retinas, and perhaps the impressions they make in the optic nerves cause our limbs to make various movements, although we are quite unaware of them" (AT I.414/CSMK 62). Following this analogy, it is clear that Descartes is denying that animals have apperception—they are not aware that they are aware. But his denial of consciousness to

animals is even stronger than this. On his view, animal perception and sensation is a purely mechanical process that involves no awareness at all.

That this is his position is clearly illustrated by his appeal, in the Sixth Replies, to "three grades of sensory response". The first, "which is common to us and brutes", is merely the mechanical stimulation of our sensory organs by external objects and involves "nothing but the motion of the particles of the organs, and any change of shape and position resulting from this motion" (AT VIII.437/CSM II.294). All animal perception and sensation amounts to, on this view, is the physical stimulation of the organs, which might trigger a mechanical response in the body leading to certain behaviors (as when we stick out our hands to protect our head during a fall). Awareness does not enter the picture until the second grade of sensory response (and judgment enters in the third); both of these levels of response require that the body be joined with an immaterial soul. Descartes could not be more clear here that consciousness requires an immaterial soul; since animals do not have immaterial souls, animals are not conscious.[8] This entails further that although animals might exhibit behaviors that appear to be pain-related, they do not feel pain and are not aware of their sensations or perceptions.

It is not difficult to see why this thesis unnerved many of Descartes's contemporaries, as well as his successors. In 1648, Henry More referred to the view as "murderous";[9] writing in 1952, Norman Kemp Smith termed it "a monstrous thesis".[10] Yet Descartes himself did not draw any ethical conclusions from this doctrine, beyond claiming that it was not so much cruel to animals as it was kind to humans, "since it absolves them from the suspicion of crime when they kill or eat animals" (AT VI.276/CSMK 366). Although Descartes would later develop something of a reputation for animal cruelty, this appears to be largely unjustified. He was, it must be admitted, a practitioner and proponent of vivisection (in fact, he refers to some of his anatomical experiments on live animals as empirical evidence for the automatism thesis), but he also had a dog of whom he was apparently quite fond, Monsieur Grat (Watson 2007: 167). However, some of his later (p. 647) followers did take this doctrine to an obvious moral extreme. According to one account, Malebranche was once observed kicking a pregnant dog; when his companion objected, hearing the animal's cries, Malebranche defended his behavior by replying "Don't you know they cannot feel?" (Rosenfield 1968:70).

2. The Argument in the Discourse: Two Behavioral Tests

There is evidence that Descartes had been entertaining a thesis of animal automatism since 1625, and perhaps even earlier.[11] But the only extended treatment of this view in his published work comes in Part Five of the *Discourse on the Method*.[12]

We know that we have souls because we have direct access to our own thoughts, that is, we have subjective experience of ourselves as thinking, imagining, sensing, and feeling beings. But we do not have the same access to the inner lives of animals. Therefore, in or-

der to determine whether or not they are rational we need to rely solely on insights gleaned from their external behavior.

Now, many of the behaviors that animals apparently have in common with us—specifically, perceptual and passionate behavior—have both an incorporeal and a corporeal cause in human beings. Since the manifestation of these behaviors in fact requires only a corporeal cause, showing that animals exhibit these behaviors will not be sufficient to demonstrate that they possess a thinking soul. Instead, we will need to identify and test for behaviors that *cannot* have only a corporeal cause, but that also require thought for their explanation. In the *Discourse*, Descartes identifies two such behaviors.

First, he argues, any rational being ought to be able to use language to communicate their thoughts, as this is something that even the most "dull-witted and stupid" human beings are able to do easily (AT VI.58/CSM I.140). But animals cannot do this, even though they have many of the same speech organs that we do, and even though human beings who lack the organs necessary for speech adapt and learn to communicate by means of other signs. What this is supposed to show is that animals fail to communicate with us not because they somehow lack the physical capacity to do so, but because they lack reason, for "speech is the only certain sign of thought hidden in a body" (AT V.278/CSMK 366).

(p. 648) One might reasonably object that animals *do* communicate their thoughts to us. After all, is this not what my cat is doing when she whines for food? But Descartes argues that forms of animal "communication" such as these—that is, those that express passions or always occur in response to external stimuli—are not sufficient to demonstrate the presence of reason in an organism, "for we can certainly conceive of a machine so constructed that it utters words which correspond to bodily actions causing a change in its organs (e.g. if you touch it in one spot it cries out that you are hurting it, and so on)" (AT VI.57/CSM I.140). A machine could be so built that it performs a limited range of actions in response to being triggered by certain stimuli. But since these behaviors admit of a mechanical explanation, they cannot be used to prove the presence of reason or a thinking soul.

Next, Descartes argues that the actions of animals do not provide evidence of rationality either:

> It is also very remarkable that although some animals show more skill than we do in some of their actions, yet the same animals show none at all in many others; so that what they do better does not prove that they have intelligence, for if it did then they would have more intelligence than any of us and would excel in everything. It proves rather that they have no intelligence at all, and that it is nature which acts in them according to the disposition of their organs. In the same way a clock, consisting only of wheels and springs, can measure time more accurately than we can with all our wisdom. (AT VI.59/CSM I.149)

The suggestion here, that animal actions are not manifestly rational, depends on a particular conception of reason. According to the Cartesian view, “reason is a universal instrument which can be used in all kinds of situations”; to act rationally is to be capable of responding meaningfully to a wide range of conditions (AT VI.57/CSM I.140). Following this logic, since animals are capable of performing many tasks with far greater proficiency than human beings, if they were rational they would likely be more proficient at *every* task. But this is clearly not the case. That animals are capable of performing certain tasks well therefore does not prove that they are rational; the limited number of behaviors that they perform, and the regularity with which they perform them, is consistent with mechanical explanation.

In general, the supposed regularity of animal behavior seems strongly to motivate Descartes’s overall thinking on animal automatism. As early as 1619–20, we can see the beginnings of the view in a remark Descartes makes in his private notebook (*Cognitiones Privatae*): “from the very perfection of animal actions we suspect that they do not have free will” (AT X.219). Given these observations, and since all observable animal behavior *could* be explained mechanically, Descartes concludes that there is no need to posit the existence of animal souls. Of course, showing that a set of behaviors *could* be explained mechanically is not the same thing as showing that these behaviors are actually so explained. But Descartes takes himself, at this point in the *Discourse*, to have *proven* that animals lack reason and consciousness. As he later emphasizes: “in fact the brutes possess no thought whatsoever; I not only stated (p. 649) this … but proved it by very strong arguments which no one has refuted up till now” (AT VII.426/CSM II.287–8).

3. Cavendish vs. Descartes on the Nature of Reason

There is no doubt that Margaret Cavendish was well informed of the details of the Cartesian view. Born Margaret Lucas to a wealthy Royalist family, Cavendish served as a lady-in-waiting to Queen Henrietta Maria, following her into exile in France in 1644. There she met her husband, William Cavendish, who would later become the Marquess of Newcastle. The two would remain in exile for much of her life, first in Rotterdam and then in Antwerp, only returning to England following the Restoration in 1660. A prolific writer, she authored a number of works in natural philosophy, as well as works of poetry, science fiction, and plays. In May 1667, she became the first woman to be invited to attend a meeting of the Royal Society, where she observed, among other things, Robert Boyle’s air pump experiments.[13]

In a November 1646 letter from Descartes to her husband, the Marquess of Newcastle, Descartes offers a clear statement of his thinking on the question of animal souls: “I cannot share the opinion of Montaigne and others who attribute understanding or thought to animals … I know animals do many things better than we do, but this does not surprise me. It can even be used to prove that they act mechanically, like a clock which tells the time better than our judgment does. Doubtless when the swallows come in spring, they

operate like clocks" (AT IV.576/CSMK 304). He then goes on to summarize the behavioral argument presented in the *Discourse*.

It is highly likely that Cavendish was familiar with the contents of this letter, which is one of the three surviving letters from Descartes to Newcastle. At the time it was written, she had been married to the Marquess for nearly a year, and by her own reports they often discussed philosophical matters together. In fact, in light of her later writings on this subject, it is even possible that she incited the Marquess to write to Descartes for a clarification of his position, resulting in this correspondence.[14]

This would have been the only means she would have had to discourse with the esteemed philosopher. Although Cavendish and Descartes met in person a couple of times during the famous "Cavendish Circle" meetings in Paris in the 1640s, they almost certainly never spoke to each other directly. Cavendish herself reports that "upon my (p. 650) conscience I never spake to Monsieur *Des Cartes* in my life, nor ever understood what he said, for he spake no English, and I understand no other language, and those times I saw him, which was twice at dinner with my Lord at *Paris*, he did appear to me to be a man of the fewest words I had ever heard" (Cavendish 1665: "An Epilogue to My Philosophical Opinions"). But despite this language barrier, we know that she carefully read a number of his philosophical writings in translation, including the *Discourse*, where, as we have seen, the animal automaton thesis receives its first and fullest treatment.

There are a number of ways one might respond to Descartes's behavioral tests. On the one hand, one could argue that, contrary to Descartes's observations, animals *do* exhibit the kind of rational behavior that Descartes is testing for—that is, they do adapt their behavior in order to respond meaningfully to a wide range of conditions. Alternately, one could object to the underlying conception of reason as a universal instrument. It is this second approach that Cavendish pursues in the *Philosophical Letters*:

> That other animals, besides man, want reason, your *Author* endeavors to prove in his *discourse of method*, where his chief argument is, That other animals cannot express their mind, thoughts, or conceptions, either by speech or any other signs, as men can do. But by reason other Creatures cannot speak or discourse with each other as men, or make certain signs, whereby to express themselves as deaf or dumb men do, should we conclude, that they have neither reason, sense, or intelligence? Certainly, this is a very weak argument; for one part of a mans body, as one hand, is not less sensible than the other, nor the heel less sensible than the heart, nor the legg less sensible than the hand, and although they cannot talk or give intelligence to each other by speech, nevertheless each hath its own peculiar and particular knowledge.
>
> (Cavendish 1664: 1.36)

Ostensibly, Cavendish seems only to be focused on the language test in this passage. But what she is really taking aim at is the conception of reason that underlies both tests: the conception of reason as a universal instrument. The presence of reason, for her, cannot

be demonstrated by the capacity to adapt one's behavior to a potentially unlimited set of circumstances, since reason is always domain-specific:

> each hath its own peculiar and particular knowledge, for one man's knowledge is not another man's knowledge, and if there be such a peculiar and particular knowledge in several parts of one animal creature, as man, well may there be such in Creatures of different kinds and sorts … Wherefore though other Creatures have not the speech, nor Mathematical rules and demonstrations, with other Arts and Sciences, as Men's, they may have as much intelligence and commerce betwixt each other, after their own manner and way, as men have after theirs.
>
> (Cavendish 1664: 1.36)

The reason animals do not communicate their thoughts to us is not because they lack intelligence, but because each has a specific kind of knowledge and perception, relative to its domain, that cannot be easily translated into other domains.

(p. 651) I will say more about what this means below, but first, it is worth noting that Pierre Gassendi (1592–1655) raises a similar objection: "you say that brutes lack reason. Well, of course they lack human reason, but they do not lack their own kind of reason" (AT VII.271/CSM II.189). But Descartes does not seem to take this objection very seriously:

> Here again you produce a lot of grumblings, but they do not require a reply any more than the previous lot. Your questions about the brutes are not appropriate in this context since the mind, when engaged in private meditation, can experience its own thinking but cannot have any experience to establish whether brutes think or not; it must tackle this question later on, by an *a posteriori* investigation of their behavior. (AT VII.359/CSM II.248)

Descartes is too quick to dismiss this point, but his frustration here is understandable. Gassendi is simply asserting, against him, that animals possess unique forms of reason. But he has not provided any behavioral evidence for thinking that this is the case, and, as Descartes has already argued, this is the only means by which we will be able to assess animal rationality (since we cannot "see inside their hearts").

Of course, part of the issue is that if reason is domain-specific in the way that Cavendish and Gassendi suggest, there may be no behavioral sign of rationality, as we cannot use human manifestations of rationality as a measure of rationality in other creatures. If we cannot test for animal rationality through behavioral observation, then we might conclude that we have reached an impasse, and that there is no way to make any definitive progress on this question—perhaps mere assertions are the best we can do. But this is not Cavendish's position. She thinks that we can do more than merely assert that animals possess their own kinds of reason and sense. On her view, the ubiquity of diverse varieties of knowledge and perception is the best explanation of the order, variety, and regularity that the natural world exhibits, and so is the most probable state of affairs.[15]

4. Cavendish on the Explanatory Failure of Mechanism

That Cavendish has this kind of argument in mind in her reply to Descartes is strongly suggested by the peculiar analogy she employs to demonstrate that reason is domain-specific. A committed Cartesian is unlikely to find her appeal to the different kinds of knowledge and sense possessed by the different parts of the body very illuminating, as a (p. 652) Cartesian would deny that the parts of the body possess their own kind of reason and sense. So why does she choose this analogy to illustrate her position?[16]

One possibility is that this analogy serves as a particularly compelling illustration of her own philosophical position, which she takes to be explanatorily superior to other systems, including Cartesian mechanism. Cavendish employs this same analogy elsewhere to demonstrate that the individual parts of nature must possess knowledge and sense in order for nature to be well ordered, just as each part of the body's knowing what it is supposed to do is the best explanation of the orderly functioning of the human body:

> But, by reason every Part knows his own Work, there is Order and Method: For example, In a human creature, those parts that produce, or nourish the bones, those of the Sinews, those of the Veins, those of the Flesh, those of the Brains, and the like, all know their several Works.
>
> (Cavendish 1668: 3.3)

Fleshing out this claim requires a (regrettably brief) tour of Cavendish's philosophical commitments. On her view, the natural world has a source of motion and organization in itself, and matter admits of three degrees: inanimate, sensitive, and rational. The inanimate matter is the material out of which the figures are shaped; it does not move itself, but is moved by the sensitive matter. The sensitive matter forms the inanimate matter under the direction of the rational matter, "[giving] this dull matter, *motion*, not onely in the building of the *figure*, but to make the figure move when it is built" (Cavendish 1653 1.24). Although these three degrees of matter are conceptually separable, they are so completely blended that all three degrees will be found in even the smallest particle of matter.[17] It follows that sensation and reason are ubiquitous, as nature is everywhere permeated with sensible and rational matter.

Corporeal nature, although infinite, can be thought of as divided into parts, and parts with similar figures can be understood as natural kinds. Although sense and reason are ubiquitous, particular expressions of sense and reason are diverse, and depend on the particular configuration of matter (its figure), its distinctive self-motions, and where it is located in the material plenum. Parts with similar figures will have similar forms of (p. 653) knowledge and perception, but knowledge and perception is varied even amongst members of the same natural kind:

> But several kinds, and several sorts in these creatures, being composed after different manners, must needs have different lives, knowledges, and perceptions: and not only every several kind, and sort, have such differences, but every particular creature, through the variations of their self-moving parts, have varieties of lives, knowledge, and the like; and not only so, but every particular part of one and the same creature, have varieties of knowledges, and perceptions, because they have varieties of actions.
>
> (Cavendish 1668: 2.2)

This is a complicated view, and there is not space here to give it the full treatment it deserves. But it is possible to say a bit more about the kinds of knowledge and perception that Cavendish believes each part must possess. According to her, each part must necessarily have perceptions of the parts of matter immediately surrounding it, as these perceptions enable sympathy or antipathy among parts, leading to composition or division (Cavendish 2001: 152).[18] In addition to perceptions of surrounding objects, each of the parts must possess an innate self-knowledge of how it is moving and of how it is supposed to move. Cavendish seems to think that there is a normativity built into nature, and that each part has certain actions it *ought* to perform depending on its figure. Parts of nature tend to behave as they are supposed to, which explains nature's general regularity. However, no part of nature is *determined* to move in a particular manner: "all creatures may have some Natural rules; but every creature may chuse whether they will follow these rules" (Cavendish 1668: Appendix 1.10). That the parts are free to choose not to follow these rules results in the occasional disorder that nature exhibits.[19]

Other manifestations of perceptive and rational behavior—for example, memory and understanding in human beings—depend on the different shapes and motions of any particular part. Animal knowledge and perception is likely very different from human knowledge and perception, and from vegetable knowledge and perception. Although we can make some inferences about a creature's manner of knowing and perceiving based on their external actions, we cannot definitively know what forms of knowledge and perception other than our own are like (Cavendish 2001: 175). But just because we cannot know for certain what animal perception and knowledge is like, this does not mean that we cannot know *that* animals (and indeed, all other corporeal parts) are knowing and perceptive. Cavendish argues that knowledge and sense *must* be both (p. 654) ubiquitous and diverse; otherwise, it is highly unlikely that nature would be as orderly, regular, and various as it is:

> But to return to knowledge and perception: I say, they are general and fundamental actions of nature; it being not probable that the infinite parts of nature should move so variously, nay, so orderly and methodically as they do, without knowing what they do, or why, and whether they move; and therefore all particular actions whatsoever in nature, as respiration, digestion, sympathy, antipathy, division, composition, pressure, reaction, etc. are all particular perceptive and knowing actions.
>
> (Cavendish 2001: 139)

Cavendish argues that dead matter moving at random would result in chaos; homogeneous matter moving in accordance with a finite number of natural laws could not produce the limitless variety that nature actually exhibits. She further rejects the view of many of her contemporaries (including Descartes) that God is somehow responsible for the order that the universe exhibits, as in her view God is a supernatural entity that has no place in natural explanations. The best explanation is instead that each part "knows its own work", and that sense and reason are fundamental properties of matter.

Both Cavendish and Descartes agree that animal behavior is generally well ordered and regular. But while Descartes believes that the order and regularity of animal behavior gives us a strong reason to believe that animals move like machines, Cavendish counters that mechanical explanation cannot account for this order. Thus, she attacks both prongs of the argument for animal automatism in the *Discourse*. In addition to calling into question the efficacy of the specific behavioral tests that Descartes proposes, she casts significant doubt on his claim that animal behavior is consistent with mechanical explanation.

5. Part of Nature: Cavendish on Humans and the Natural World

As we have seen, in the *Discourse* Descartes argues that we have no behavioral evidence that animals possess reason. Since all visible animal behavior *could* be explained mechanically, there is no reason to attribute souls to animals. Cavendish has called both of these claims into question.

Descartes's argument for animal automatism resurfaces in a 1649 letter to the Cambridge Platonist Henry More (1614–87), this time with a slightly different emphasis. Conceding that we cannot "prove" that animals lack sensation and reason (despite his previous assertions to the contrary), he nevertheless claims that

> when I investigate what is most probable in this matter, I see no argument for animals having thoughts except this one: since they have eyes, ears, tongues, and (p. 655) other sense-organs like ours, it seems likely that they have sensation like us, and since thought is included in our mode of sensation, similar thought seems to be attributable to them. This argument, which is very obvious, has taken possession of the minds of all men from their earliest age. But there are other arguments, stronger and more numerous, but not so obvious to everyone, which strongly urge the opposite. One is that it is more probable that worms, flies, caterpillars and other animals move like machines than that they have immortal souls. (AT V.276/CSMK 365)

He presents a similar argument in the 1646 letter to Newcastle, which, as I suggested above, Cavendish was most likely familiar with: "if [animals] thought as we do, then they would have immortal souls like us. This is unlikely, because there is no reason to believe it of some animals without believing it of all, and many of them, such as oysters and

sponges, are too imperfect for this to be credible" (AT IV.576/CSMK 304). For Descartes and many of his contemporaries, the idea of oysters and sponges being granted infinite reward in the afterlife seems obviously absurd. To have an immaterial soul is to have a special kind of status; surely, this is not a status that humans share with imperfect beings such as these. Although we cannot be certain that animals do not have souls, theological constraints require us to view them as pure machines.

Strictly speaking, Cavendish agrees with Descartes that animals do not have immaterial souls; but on her view, neither do humans. She rejects outright the possibility of immaterial souls in nature, arguing that the immaterial in nature is an impossible concept which signifies nothing (Cavendish 1664: 1.2). Although she sometimes (somewhat puzzlingly) speaks of immaterial *supernatural* souls, she is clear that such entities, if they exist at all, cannot figure into natural explanation, since what "is supernatural … goes beyond a natural reach or capacity" (Cavendish 1664: 1.33). Cavendish's considered view appears to be that we must be agnostic about the prospect of supernatural, immortal souls, although she is not always explicit about this (perhaps to avoid charges of religious heresy).

Descartes's hesitance to attribute immortal souls to animals is shared by Malebranche, who will later expand this sentiment into a full-blooded theological argument against the possibility of animal souls. As the argument runs, if God is just, then an innocent being will not suffer pain without being compensated for it in the afterlife. Animals are innocent. But since animals obviously do not have immortal souls and so do not go to heaven, then either animals do not suffer pain, or God is not just. It should not surprise the reader to learn which of these two disjuncts Malebranche rejects.

Many early adopters of the animal automatism thesis saw similar theological benefits in drawing a sharp line between human beings and animals. In addition to allowing one to avoid the theologically disastrous consequence that a just God would allow innocent beings to suffer, animal automatism seemed to provide a satisfactory account of man's dominion over the animals. Picking up on Descartes's assertion that animal automatism is not so much cruel to animals as it is kind to human beings, "since it absolves them from the suspicion of crime when they kill or eat animals" (AT VI.276/CSMK 366), Antoine Dilly argues in his 1676 *De L'Ame des Betes* that a just God would not give fallen (p. 656) human beings dominion over any being capable of enjoyment and suffering. Since human beings *do* have dominion over the animals (Genesis 1:26), then animals must not be capable of enjoyment or suffering (or God is not just).

All three of these arguments depend on the assumption that there is something distinctive about human beings that sets them apart from and above the rest of natural creation. In an interesting twist, Cavendish provides an argument against this position *by appealing to God's justice*: "wherefore the soul cannot be immaterial, or else some parts of the world would be destitute of soul, which might deserve it as well as the rest, which would argue a partiality in the creator" (Cavendish 2001: 256). Granting the Malebranche/Dilly assumption that God is just (although Cavendish seems to think that we cannot know with certainty any of God's attributes), Cavendish thinks what actually follows from this is that

a just God would not privilege one class of his creation absolutely above others. Thus, considerations of God's justice speak *against* the possibility of immaterial souls and human superiority.[20]

This response is reflective of her repeated rejection of the psychological tendency, exemplified by the animal automatism thesis, to believe that human beings are exclusive manifestations of sense and reason, somehow set above the rest of the natural world. This prejudice lies at the root of Descartes's and Malebranche's reluctance to ascribe immortal souls to animals, and behind Descartes's and Dilly's belief in the fact of human dominion:

> I perceive Man has a great spleen against self-moving corporeal Nature, although he himself is part of her, and the reason is his Ambition; for he would fain be supreme, and above all other creatures, as more towards a divine Nature: he would be a God, if arguments could make him such, at least God-like.
>
> (Cavendish 2001: 209)

In privileging our own ways of thinking and perceiving, we are misled into false conclusions concerning human superiority. Since expressions of knowledge and perception in other creatures tend not to look like ours, we discount their presence. This is what makes the Cartesian position so compelling, and also so misguided:

> but by reason they do it not after the same manner or way as man, man denies, that they can do it at all, which is very hard; for what man knows, whether Fish do not know more of the nature of water, ebbing and flowing, and the saltness of the Sea? Or whether Birds do not know more of the nature and degrees of Air, or the cause of Tempests? Or whether worms do not know more of the nature of Earth, and how Plants are produced? Or Bees of the several juices of flowers, then Men? And whether they do not make there Aphorisms and Theoremes by their manner of intelligence? For though they have not the speech of man, yet thence doth not follow, that they have no intelligence at all. But the ignorance of men concerning other creatures is the cause of despising other creatures, imagining themselves as petty (p. 657) gods in nature, when nature is not capable to make one God, much less so many as mankind.
>
> (Cavendish 1664: 1.10)

As parts of nature, we lack a neutral standpoint that would enable us to assess the relative value of different modes of knowledge and perception. Our knowledge is only ever partial; no part can ever attain complete knowledge of the whole. A proper understanding of this fact will engender a kind of epistemic humility that is antithetical to the belief in human superiority.

Cavendish's refusal to draw a sharp line between human beings and the natural world is a recurrent theme throughout her corpus. Even many of those who reject the animal automaton thesis, such as Gassendi and More, continue to hold that human beings are supe-

rior to animals in some way. But for Cavendish, there is no hierarchy of ways of knowing. Although sense and reason may vary among different creatures (and indeed, even among members of the same natural kind), no manifestation of sense and reason is inherently more valuable than any other. Her belief in the basic equality of creatures as co-equal parts of nature is one of the most unique elements of her thought, and certainly stands in sharp contrast to the Cartesian picture of nature.

Given the radical differences between their views, we might be tempted to conclude that Cavendish and Descartes are simply talking past each other on the issue of animal souls. On Cavendish's view, sense and reason are universal qualities of matter that take a variety of forms; all things are capable of perceiving their surroundings and know how to perform their various functions. It follows that animals must be both perceptive and intelligent, since they are made up of the same perceptive and rational stuff that comprises the entirety of the material universe. In response, Descartes might argue that he has not actually denied perception to animals, and that an entirely different conception of intelligence motivates his denial of animal rationality. Thus, her objections do not really speak against his view.

But this impasse reveals what is so instructive about reading these thinkers side by side on this question. For what is really at the heart of their disagreement is not the question of animal souls but issues related to the nature of matter, the intelligibility of mechanical explanations in nature, the proper conception of reason, and the relationship between human beings and the natural world. Many of the positions that Cavendish stakes out in opposition to Descartes are surprisingly modern, and illustrate the wide range of possible answers to these questions that were available in the seventeenth century. There is therefore still much that can be learned from considering Margaret Cavendish as a critical reader of Descartes.

References

Ablondi, Fred (1998), "Automata, Living and Non-Living: Descartes's Mechanical Biology and His Criteria for Life", *Biology and Philosophy* 13: 179–86.

Boyle, Deborah (2015), "Margaret Cavendish on Perception, Self-Knowledge, and Probable Opinion", *Philosophy Compass* 10: 438–50.

(p. 658) Boyle, Deborah (2018), *The Well Ordered Universe: The Philosophy of Margaret Cavendish*. Oxford: Oxford University Press.

Broad, Jacqueline (2002), *Women Philosophers of the Seventeenth Century*. Cambridge: Cambridge University Press.

Cavendish, Margaret (1653), *Philosophical Fancies*. London: Printed by Tho. Roycroft for J. Martin and J. Allestyre.

Cavendish, Margaret (1664), *Philosophical Letters: Or, Modest Reflections Upon some Opinions in Natural Philosophy, Maintained by several Famous and Learned Authors of this Age, Expressed by way of Letters*. London.

Cavendish, Margaret (1665), *Philosophical and Physical Opinions*. London: J. Martin and J. Allestyre.

Cavendish, Margaret (1668), *Grounds of Natural Philosophy*. London: A. Maxwell.

Cavendish, Margaret (2001), *Observations on Experimental Philosophy*, ed. Eileen O'Neill. Cambridge: Cambridge University Press.

Clucas, Steven (1994), "The Atomism of the Cavendish Circle: A Reappraisal", *The Seventeenth Century* 9: 247–73.

Cottingham, John (1978), "A Brute to the Brutes? Descartes's Treatment of Animals", *Philosophy* 53: 551–9.

Des Chene, Dennis (2000), *Life's Form: Late Aristotelian Conceptions of the Soul*. Ithaca, NY: Cornell University Press.

Detlefsen, Karen (2007), "Reason and Freedom: Margaret Cavendish on the Order and Disorder of Nature", *Archiv für Geschichte der Philosophie* 89: 157–91.

Gontier, Thierry (2000), "Sous un Dieu juste, les animaux peuvent-ils souffrir? Un argument 'augustinien' pour les animaux-machines", *Corpus: Revue de philosophie* 37: 27–67.

Hatfield, Gary (1992), "Descartes' Physiology in Relation to His Psychology", in John Cottingham (ed.), *Cambridge Companion to Descartes*. Cambridge: Cambridge University Press, 335–70.

Michaelian, Kourken (2009), "Margaret Cavendish's Epistemology", *British Journal for the History of Philosophy* 17: 31–53.

Riskin, Jessica (2016), *The Restless Clock: A History of the Centuries-Long Argument Over What Makes Living Things Tick*. Chicago: University of Chicago Press.

Rosenfield, Leonora Cohen (1968), *From Beast-Machine to Man-Machine: Animal Soul in French Letters from Descartes to la Mettrie*. New York: Octagon Books.

Serjeantson, R. W. (2001), "The Passions and Animal Language, 1540–1700", *Journal of the History of Ideas* 62: 425–44.

Smith, Norman Kemp (1952), *New Studies in the Philosophy of Descartes: Descartes as Pioneer*. London: Macmillan.

Thomas, Keith (1983), *Man and the Natural World*. New York: Pantheon Books.

Watson, Richard (2007), *Cogito Ergo Sum: The Life of Rene Descartes*. Boston, MA: David R. Godine.

Whitaker, Katie (2002), *Mad Madge: The Extraordinary Life of Margaret Cavendish, Duchess of Newcastle, The First Woman to Live by Her Pen*. New York: Basic Books.

Wilson, Margaret (1995), "Animal Ideas", *Proceedings and Addresses of the American Philosophical Association* 69: 7–25.

Notes:

([1]) The Cartesian view has a number of historical precedents. Thomas Aquinas also describes animal actions using the analogy of clockwork; in 1554, Spanish physician Gomez Pereira formulated a doctrine almost identical to Descartes's thesis (Thomas 1983: 33).

([2]) For other discussions of Cavendish's objections, see Broad 2002: 50–5 and Boyle 2018: 189–93.

([3]) Many of Cavendish's works have not been published in modern editions, which can make citing her difficult. In general, I refer to texts by the year, part, and chapter number, so that passages can be easily found in either facsimile or online reproduction (e.g. Cavendish 1668: 2.2 = Part 2, Chapter 2). Two exceptions to this are the 1664 *Philosophical Letters*, where I refer to passages by part and letter number (e.g. 1.36 = Part 1, Letter 36) and the *Observations on Experimental Philosophy*, where all of the page numbers refer to Cavendish 2001.

([4]) For more on the scholastic view, see Des Chene 2000.

([5]) For more on this analogy, see AT XI.129–32/CSM I.100–1. For a detailed description of the hydraulic automatons at Saint-Germain-en-Laye, see Riskin 2016.

([6]) As mentioned in the introduction to the chapter, in the Sixth Objections to the *Meditations*, raised by "various theologians and philosophers", the objectors argue that if animals are shown to act entirely mechanically, the same might also be said of human beings: "There are plenty of people who will say that man himself lacks sensation and intellect, and can do everything by means of mechanical structures, without any mind, given that apes, dogs, and elephants can perform all their operations by mechanical means" (AT VII.414/CSM II. 279). This view finds its natural culmination in the eighteenth-century work of La Mettrie. For more on this, see Rosenfield 1968.

([7]) For a discussion of what "life" amounts to for Descartes, and how it can be explained mechanically, see Ablondi 1998.

([8]) For an alternative view, see Cottingham 1978.

([9]) Quoted in Thomas 1983: 35.

([10]) Smith 1952: 136.

([11]) For more on the origins of the animal automatism thesis in Descartes's early work, see Rosenfield 1968. For a discussion as to whether or not an early version of the animal automatism thesis appears in the 1628 *Rules*, see Hatfield 1992: 359.

([12]) Descartes also discusses his position on animals in the Replies to the *Meditations, The Passions of the Soul*, and in various correspondence. See AT VII.182–3/CSM II.128; AT VII.230–1/CSM II.161–2; AT VII.358–9/CSM II.247–8; AT VII.426–8/CSM II.287–9; AT XI.369/CSM I.348; AT I.154/CSMK 26; AT I.263/CSMK 40; AT I.414–15/CSMK 61–2; AT II. 40–1/CSMK 61–2; AT II.40–1/CSMK 99–100; AT II.85/CSMK 148; AT III.370/CSMK 181; AT III.48–9/CSMK 203–4; AT IV.573–6/CSMK 302–4; AT VI. 276–9/CSMK 365–6; AT V 345/ CSMK 374.

([13]) For more on the life of Cavendish, see Whitaker 2002.

([14]) R. W. Serjeantson (2001: n. 74) erroneously supposes that this letter was from Descartes to Margaret herself, instead of to her husband. But this cannot be, as Cavendish and Descartes shared no common language in which to discourse. Although it is tempting to imagine that these figures engaged each other directly, exchange of their views must have been mediated either by her husband, William Cavendish, or by her brother-in-law, Charles Cavendish, who was also one of Descartes's correspondents.

([15]) Cavendish is mostly unwilling to express her philosophical views with any certainty; she prefers instead to present her theses as highly probable. For more on this aspect of Cavendish's thought, see Boyle 2015.

([16]) Her choice of analogy here appears especially odd when we consider that, as Jacqueline Broad has pointed out, she already has a plausible analogical argument against Descartes ready at hand, an argument that she actually does give in response to Hobbes's views on children's reason. Responding to Hobbes's claim that "children are not endued with reason at all, till they have attained to the use of Speech", Cavendish replies: "For though reason doth not move in a Child as in a Man, in Infancy as in Youth, as Youth as in Age, yet that doth not prove that Children are without reason." As Broad points out, this analogical argument undermines the behavioral tests, as prelingual infants "demonstrate that there is no strict correlation between the possession of a mind (or a 'rational soul') and the ability to express thoughts in language" (Broad 2002: 52).

([17]) Although, strictly speaking, for Cavendish there is no such thing as a "smallest particle of matter", as for her matter is infinitely divisible. Though she was a proponent of atomism in her earliest writings, by the time of her mature philosophical output, she appears to have completely rejected the view (although some scholars disagree—for an argument that Cavendish does not entirely reject atomism, see Clucas 1994). For more on the "complete blending" view, see Cavendish 2001.

([18]) Cavendish offers a fairly detailed account of human perception, describing it as an internal "patterning" occasioned by external objects. But while she suggests that perception may work in a similar manner in other creatures, she is not committed to this view,

and remains agnostic about how exactly perception might work in other parts of nature. For a detailed treatment of her occasionalist theory of perception, see Cavendish 2001 and Michealian 2009.

([19]) See Detlefsen 2007.

([20]) For a discussion of the animal-machine thesis relative to considerations of divine justice, see Gontier 2000.

Hadley Cooney

University of Wisconsin—Madison

Spinoza, Descartes, and the “Stupid Cartesians”

Steven Nadler

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Spinoza’s relationship to Descartes and his followers is complex. On the one hand, he was clearly inspired and influenced by the metaphysical and epistemological principles of Cartesian philosophy. On the other hand, his system represents a significant departure from some of that philosophy’s most fundamental principles. In this chapter, I consider those aspects of Descartes’s thought that Spinoza, over the course of his philosophical career, accepted, modified, and rejected, as well as his tense relations with later Cartesians who sought to distance themselves from a “heretic” perceived by ecclesiastic, academic, and civil authorities as one of their own.

Keywords: Benedictus Spinoza, Velthuysen, Utrecht, Van Mansvelt, Burman, Desmarets, Melchior

(p. 659) 1. The *Stolidi Cartesiani*

WRITING to Henry Oldenburg in the fall of 1675, the philosopher Bento (Benedictus) de Spinoza (Amsterdam, 1632–The Hague, 1677) tells the corresponding secretary of the Royal Society that a rumor was circulating in the Dutch Republic that “a certain book of mine about God was in press, and that in it I tried to show that there is no God”. That book, of course, was the *Ethics*, and as a result of that rumor theologians were complaining to the authorities about its author and trying to forestall publication.[1] What really rattled Spinoza, however, was the behavior of certain generally liberal intellectuals whom he might reasonably have counted on to defend, if not his ideas, then at least the freedom of philosophizing. He tells Oldenburg that “the stupid Cartesians, because they are believed to favor me, try to remove that suspicion from themselves by constantly denouncing my opinions and writings everywhere. Even now they are still at it” (Ep. 68, Spinoza 1925: 4:299/Spinoza 2016: 459).

Spinoza’s terse complaint to his English friend condenses a good deal of information. First, we know that in the early and mid-1670s, Spinoza’s philosophy, such as it was available in a limited form, was regarded by a not easily ignored faction of Dutch (p. 660) soci-

ety—conservative Reformed theologians and their academic and political allies—as the radical but natural offspring of Cartesianism.

Second, this story about the pedigree of Spinoza’s thought, regardless of its accuracy, was being used to attack not only Spinoza but Descartes’s Dutch partisans as well. Cartesian philosophers and the liberal Cocceian faction of Dutch theologians were seen by more orthodox and conservative theologians, not incorrectly, as allies in the battle for the religious and political soul of the Republic. By the early 1670s, the conservatives strategized their attack on the Cartesians—whom they regarded as a danger to the moral, spiritual, and intellectual well-being of the Republic’s citizens—by focusing on an “atheistic” thinker who appeared to be only a more extreme representative of their ideas.

Third, Spinoza’s remark reveals that he is perfectly aware that the harsh critiques aimed at him by contemporary Cartesians, whatever may have been their shared philosophical assumptions and political persuasions, was a rearguard effort (perhaps cynical, perhaps not) to save their own skins by trying to distance themselves from him.

Who were these “stupid Cartesians [*stolidi Cartesiani*]” to which Spinoza so disdainfully refers in his 1675 letter? The epicenter seems to have been a network (or “college”) of academics and fellow travelers based in Utrecht. For some time—in fact, since soon after the publication of the *Theological-Political Treatise* (*TTP*)—there had been a series of attacks against the *TTP* and its author coming from theologians, philosophers, and even *mercatores sapientes* (professionals and businessmen with a scholarly bent, a common class in early modern Dutch society) in that university town. These include Johannes Georgius Graevius, professor of history, eloquence, and politics; Regnier van Mansvelt, a professor of logic and metaphysics; Frans Burman, professor of theology; and Lambert van Velthuysen, a physician and director of the Dutch West Indies Company. Beyond Utrecht, there was the Dordrecht grain merchant Willem van Blijenbergh,[2] who corresponded with Spinoza; the Rotterdam wine merchant Johannes Bredenburg;[3] the Dutch physician Cornelis Bontekoe;[4] and a young German theologian of Cocceian persuasion named Johannes Melchior. While not all of the same mind, these individuals shared a commitment to the basic project of Cartesian philosophy as a rationalist enterprise with progressive ethical, political, and religious dimensions.[5]

(p. 661) We can get a sense of what in Spinoza’s *TTP* worried these professional and amateur Cartesians—and this was the work that incited their onslaught; at this point they really had no idea that the *Ethics* was waiting in the wings—by looking at a letter that Velthuysen wrote in January 1671 to his friend Jacob Ostens, and that was eventually seen by Spinoza. The *TTP* is, as its subtitle indicates, an extended argument for the “freedom of philosophizing”, and is directed especially against ecclesiastic meddling in intellectual domains that have nothing to do with faith or piety. This aspect of Spinoza’s project, at least, was not uncongenial to most contemporary Cartesians. However, as part of his effort to undermine the ambitions of the *predikanten*, Spinoza also argues that the Bible is simply a work of human literature (and a rather “mutilated” and “corrupted” one at that, given its centuries-long transmission through scribal and printed copies); and that

the ancient prophets, while endowed with moral virtue and gifted imaginations, were not especially learned men, and so their extant writings are not necessarily a source of truths about the cosmos, nature, or even God. The interpretation of Scripture is to proceed through a kind of rational inquiry very similar to the methods of natural science. One seeks to discover the intended meanings of Scriptures' authors by gathering linguistic, historical, and biographical data, investigating the circumstances of its composition, and making textual comparisons. In the *TTP*, Spinoza also identifies divine providence with the law-like course of nature, and—since everything comes about with a causal necessity as a result of nature's laws—thereby denies the possibility of miracles.

Velthuysen, who would go on to write a number of treatises against Spinoza,[6] complains in his letter to Ostens that Spinoza apparently identifies God with nature itself, and endorses a determinism that vitiates any freedom of the will. "He says plainly that everything happens by unconquerable necessity and inevitable fate" and "maintains that this whole universe is God" (Ep. 42, Spinoza 1925: IV.208/Spinoza 2016: 375). Such doctrines undermine the authority of the Bible and can have only a deleterious effect on religious beliefs and moral behavior. "His teaching destroys and completely subverts all worship and religion, secretly introduces Atheism, or at least imagines a God who cannot move men to reverence for his Divinity. His God is subject to fate; no room is left for any divine governance or providence; the whole distribution of punishments and rewards is destroyed" (Spinoza 1925: IV.218/Spinoza 2016: 385).

As concerned as Velthuysen is with Spinoza's views on God, nature, religion, and the Bible, he is perhaps even more worried about Cartesians as a whole being associated with this godless, anti-Christian philosophy. This was not simply an abstract fear. In fact, just a few months before Velthuysen's letter there appeared in Groningen a treatise by a Reformed theologian named Samuel Desmarets (Maresius) titled *Vindiciae Dissertationis suae nuperae, de Abusu Philosophiae Cartesianae* (1670). This was Desmarets's follow-up to an initial attack he had made on the radical Cartesians—the *De Abusu philosophiae cartesianae* (1670)—and especially on Lodewijk Meijer's *Philosophia S. Scripturae Interpres* (1666), in which Meijer (a close friend of Spinoza's) argues that philosophy and (p. 662) reason are the touchstone for the true interpretation of Scripture. When Cartesians responded to Desmarets's first sally, in part by protesting that they were no less appalled by Meijer's work, Desmarets published his *Vindiciae*, in which he claims that Spinoza's just published *TTP*, an "atheistic" book if ever there was one and a threat to theology and faith, composed by an "ex-Jew, blasphemer and formal atheist", clearly had deep Cartesian roots. That the *TTP* and its account of the interpretation of the Bible "is wholly based … on the hypotheses of Cartesian philosophy" (as well as on the "theorems of Hobbes, the English Machiavelli") is, Desmarets says, "clearer than the noonday sun" (Maresius 1670: 4). In yet another treatise published the following year, Desmarets repeats the charge that Spinoza's ideas have their foundation in "Cartesian and Hobbesian principles" (Maresius 1671: 10).[7]

Desmarets, who earlier in his career had been quite favorable to Descartes’s philosophy, was certainly not alone in thinking that Spinoza’s views were just a natural, if radical, extension of Cartesianism. In fact, Spinoza’s theses in the *TTP*—his account of the interpretation of Scripture; his defense of freedom of thought and expression; the rational approach to religion and piety; and the separation of theology and philosophy—could easily be taken to resemble the kinds of things that certain Cartesians had been saying. (Subtle differences are rarely noted, much less respected, in heated intellectual polemics in the seventeenth century). Even Cartesians would have seen, with some dismay, how close Spinoza’s views in the *TTP* might appear to be like theirs. Velthuysen, for one, was undoubtedly worried that much of what Spinoza says about the Bible looks awfully similar to what might be found in his own writings on Scripture—for example, Velthuysen’s claim that the explanation of Scripture needs to take into account the circumstances of its composition and his implication that the Bible is not a source of truth about matters of natural philosophy.[8]

In order to spare themselves from being tarnished with the Spinozist label and the political repercussions that would follow, the Cartesians had no alternative but to distance themselves from Spinoza. A direct reply to Desmarets’s *Vindiciae* was immediately penned by Mansvelt (writing under the pseudonym “Petrus ab Andlo”). In his *Animadversiones ad Vindicias Dissertationis Samuel Maresius*, Mansvelt (1671) responds to the charge that the author of that initial response to Desmarets’s first attack on the Cartesians—that is, Mansvelt himself in his original guise of “Ab Andlo”—was a “disciple of Spinoza”. He claims that he “did not know nor has met Spinoza, nor heard him, nor approves of his absurd dogmas” (Ab Andlo 1671: 7).[9] To make it perfectly clear that he, representing the Cartesian camp, was far from being a follower of Spinoza, Mansvelt followed the *Animadversiones* with a direct assault on Spinoza titled *Adversus anonymum* *(p. 663)* *theologico-politicum*, published (posthumously) in 1674 (Mansvelt 1674) and thus not that long before Spinoza’s complaint about the “stupid Cartesians”.[10]

Even before Mansvelt’s *Animadversiones*, which appeared less than a year after the publication of the *TTP*, there was a refutation of Spinoza’s treatise by Johannes Melchior. Like Velthuysen and Mansvelt, Melchior, who received his theological education in Groningen and had been a student of Desmarets there, was taken aback by the *TTP*’s apparent identification of God with nature and the consequent “atheism” and “fatalism”. Already in July of 1670 he was urged on to refute the still “anonymous author” of this “impious” treatise by a member of the Utrecht Cartesian circle, Graevius.[11] In his *Epistola ad amicum continens Censuram Libri, cui titulus Tractatus Theologico-Politicus*, composed later that summer and published in early 1671, Melchior—using the anagram ‘Zinospa’[12]—offers a refutation of Spinoza’s views on religion and Scripture. Melchior accuses Spinoza, “a man condemned [*damnatus*] by his own statements and opinions”, of fostering Socinianism through his “monstrous”, “blasphemous”, and “irreligious” book.[13] As one scholar has shown, Melchior’s *Epistola*, perhaps the earliest printed attack on the *TTP* and published in Utrecht, must (despite its author’s German residence) have had its origins in the Cartesian network there.[14]

Indeed, the anti-Spinoza efforts among the Cartesians in Utrecht seem to have been well-coordinated, led in part by Frans Burman. While not publishing anything himself, Burman encouraged others to jump on the bandwagon against Spinoza’s *liber pestilentissimus* and dispel the impression that it is a Cartesian work.[15] Spinoza was thus quite right to suspect organized Dutch Cartesian machinations against him, a collusion from various parts to distance themselves from his scandalous ideas.[16]

(p. 664) 2. Spinoza’s Cartesian Reputation: *Renati des Cartes Principiorum Philosophiae Pars I and II*

It is perfectly understandable that Spinoza should have been regarded by his contemporaries as a representative of the Cartesian philosophy, perhaps its most prominent one, and not just because of apparent (but often false) similarities between what he says in the *TTP* and what could be found in the writings of moderate (Velthuysen) and radical (Meijer) Cartesians. After all, Spinoza published only two books in his lifetime: the *TTP* and the *René Descartes’s Principles of Philosophy, Parts I and II, Demonstrated in the Geometric Manner* (*PPC*), a not uncritical summary of the first two parts (and some of the third) of the *Principia Philosophiae*, which Descartes had published in 1644. While the *TTP* was published anonymously, the *PPC*, which appeared in 1663, proudly bears on its title page “By Benedictus de Spinoza of Amsterdam”. Who else but a devoted Cartesian would undertake such a project? Meanwhile, manuscript copies of the *Ethics*—in which Spinoza shows himself to be not a Cartesian at all, but rather a highly original and independent thinker who, while employing a good deal of Cartesian terminology and concepts, challenges central theses of Descartes’s philosophy—circulated among a cohort of friends and acquaintances, but it was not something that would fall into the hands of Desmarets and other anti-Cartesian/anti-Spinoza critics. (Had it done so, it is unlikely they would have seen it as anything other than Cartesianism unhinged, and what they would have read there would certainly have shocked them and only confirmed their worst fears about what Spinoza had to say about God, religion, and freedom).

The *PPC* has its origins in some tutorials on Cartesian philosophy that Spinoza was giving to a young man studying at the University of Leiden, Johannes Casear (Casearius). As Spinoza tells Oldenburg in the summer of 1663, his friends in Amsterdam encouraged him to take those lessons and turn them into a treatise “containing a precise account of the Second Part of Descartes’s *Principles*, demonstrated in the geometric style, and of the main points treated in metaphysics” (Ep. 11, Spinoza 1925: IV.63/Spinoza 1985: 207). The published work begins in fact with a review of the epistemological issues that Descartes deals with in Part One of the *Principles* and in the *Meditations*. Spinoza then goes on to consider the metaphysical foundations of Cartesian science (including topics about God), and follows this with propositions concerning the universal features of the world and the most general principles of Cartesian physics: the nature of matter, motion, and force; the composition and properties of physical bodies; and the laws governing bodies in motion.

The *PPC* concludes with the promise of explanations of various celestial phenomena (such as the nature of the sun, planets, and comets); however, this foray into the causes of "those things that follow from [the most universal principles of natural things]" is lacking from the extant text.

When Spinoza was composing the *PPC*, he was already convinced of the shortcomings of Descartes's philosophy. In 1661 he is telling Oldenburg about the "errors I find in (p. 665) the philosophy of Descartes". These amount to fairly substantial misgivings about a philosopher for whom he nonetheless has great respect. "The first and greatest error is that [he has] wandered so far from knowledge of the first cause and origin of all things. Second, [he] did not know the true cause of the human mind. Third, [he] never grasped the true cause of error" (Ep. 2, Spinoza 1925: IV.8/Spinoza 1985: 167). Spinoza later tells Meijer, whom he has charged with writing a preface to the *PPC*, to make it clear to readers that the book is not a perfectly faithful rendering of Descartes's ideas. Some reordering, filling in, and completing of Descartes's text was necessary. "I wish you would point out to [readers] that I demonstrate many things in a way different from the way Descartes demonstrated them, not to correct Descartes, but to retain my own order better and not increase the number of axioms so much, and that for the same reason I demonstrate many things Descartes asserts without any demonstration, and have had to add others Descartes omitted" (Ep. 15, Spinoza 1925: IV.72/Spinoza 1985: 215). As Meijer notes in his preface, many things in the treatise were not explicitly said by Descartes but nonetheless can be "deduced validly from the foundations he left" (PPC, Preface, Spinoza 1925: I.131/Spinoza 1985: 229). Spinoza clarifies (where Descartes is, he says at one point, "obscure"), interprets, expands, gives examples, justifies, adds suppressed premises, improves the arguments; in short, he acts at times like a faithful albeit creative Cartesian, doing what many other Cartesian thinkers of the period did. For example, we find the fairly orthodox Cartesian Louis de la Forge proceeding in this way both in his extended commentary to the 1664 edition of Descartes's *Treatise on Man* and in his own *Treatise on the Human Mind* of 1666. This would explain why Blijenbergh, for one, seems initially to take the author of the *PPC* to be a fellow Cartesian.[17]

Unlike La Forge, however, and as Blijenbergh soon finds out (much to his dismay), Spinoza is not working on behalf of Cartesianism. He is not really interested in simply providing an improved version of what Descartes had done—"rendering in the synthetic order what Descartes wrote in the analytic, and demonstrating in the manner familiar to geometricians", as Meijer writes (PPC, Preface, Spinoza 1925: I.29/Spinoza 1985: 227). In the *PPC*, Spinoza queries, criticizes, and suspends judgment on Descartes's theses ("I do not know whether it is a greater work to create [or preserve] a substance than to create [or preserve] attributes" [*PPC* I, Proposition, scholium, Spinoza 1925: I.161/Spinoza 1985: 248]). He also corrects and outright denies things Descartes had asserted. Sometimes he gives Descartes the benefit of the doubt ("I think Descartes was too intelligent to have meant that" [*PPC* I, Proposition, scholium, Spinoza 1925: I.162/Spinoza 1985: 249]); and sometimes he takes him to task—for example, accusing him of offering an invalid proof of

God's existence, and of "not understanding what he nevertheless seems to mean" (*PPC* I, Proposition, scholium, Spinoza 1925: I.163/Spinoza 1985: 250).

While Spinoza's goal is to present a kind of manual to Descartes's philosophy, for the benefit of his Amsterdam friends and others, he wants Meijer also to make it clear in his preface that the *PPC* is not a presentation of his own views, which Meijer faithfully does:

(p. 666)

> For since he had promised to teach his pupil [Casearius] Descartes's philosophy, he considered himself obliged not to depart a hair's breadth from Descartes's opinion, nor to dictate to him anything that either would not correspond to his doctrines or would be contrary to them. So let no one think that he is teaching here either his own opinions, or only those of which he approves. Though he judges that some of the doctrines are true, and admits that he has added some of his own, nevertheless there are many that he rejects as false, and concerning which he holds quite a different opinion. (*PPC*, Preface, Spinoza 1925: I.131/ Spinoza 1985: 229)

Meijer, who was certainly familiar with his friend's own thoughts on metaphysical and other matters—he was a part of the Amsterdam reading group that had been discussing early drafts of what would eventually become the *Ethics*—goes on to highlight some of the more remarkable divergences between Spinoza's opinions and those of Descartes. Spinoza, he notes, "does not think that the will is distinct from the intellect, much less endowed with such freedom" (*PPC*, Preface, Spinoza 1925: I.132/Spinoza 1985: 229). Nor, Meijer continues, does Spinoza agree with Descartes that the mind is a substance in its own right. These are quite significant points of philosophical difference.

Perhaps most consequential of all, Meijer notes that Spinoza does not share Descartes's view that there are things that surpass the human understanding. "It must not be thought that our Author [Spinoza] offers this as his own opinion." The problem, Meijer adds on Spinoza's behalf, is that "the foundations of the sciences brought to light by Descartes, and the things he built on them, do not suffice to disentangle and solve all the very difficult problems that occur in Metaphysics. Different foundations are required, if we wish our intellect to rise to that pinnacle of knowledge" (*PPC*, Preface, Spinoza 1925: I.132/ Spinoza 1985: 230).[18] It is hard to imagine La Forge or some other Cartesian of the 1660s admitting (in writing!) that in Descartes's works there are many doctrines that he rejects as false, much less that new and different metaphysical foundations are required.

Despite Meijer's warnings, a reader of the *PPC* could easily come away with the impression that Spinoza is a critical but card-carrying member of the Cartesian camp—a somewhat unorthodox member, to be sure, but perhaps no more unorthodox than, say, Géraud de Cordemoy, who in his *Six Discourses on the Distinction Between the Body and the Soul* (1666) substitutes atoms and empty space for Descartes's indefinitely divisible matter constituting a cosmic plenum; or Nicolas Malebranche, whose Vision in God doctrine, first presented in the *Search After Truth* (1674–5), is a remarkable (and, from a strictly

Cartesian perspective, unjustifiable) departure from Descartes’s theory of ideas, and whose occasionalist account of causation goes well beyond anything Descartes’s could have envisioned or would have sanctioned.

(p. 667) 3. On Cartesian Method: *Tractatus de Intellectus Emendatione*

When one considers Spinoza’s oeuvre as a whole—and especially works that were not published until just after his death in 1677, in Latin and Dutch editions put together by his friends—one acquires a better sense of the complexity of his relationship to Descartes and Cartesianism.[19] It is true that much of the language and conceptual framework of his mature philosophy, and even some of its essential substantive foundations, are Cartesian. The primary categories of his metaphysics are substance, attribute, and mode. There is a dualism of mind and matter, understood respectively as thought and extension. Knowledge comes by way of clear and distinct ideas. However, the story is certainly much more complicated than what was believed (on a fairly superficial basis) by the critics against whom the “stupid Cartesians” were reacting.

Spinoza was probably first introduced to Cartesian philosophy in the mid-1650s by his Latin tutor, the ex-Jesuit political radical Franciscus van den Enden. And his first extant writing, the *Treatise on the Emendation of the Intellect* (*TIE*), composed in the late 1650s—just a few years after his *herem* (excommunication) from Amsterdam’s Portuguese-Jewish community—but left uncompleted and unpublished in his lifetime, is, to be sure, a very Cartesian work.

An obvious model for the *TIE* is one of Descartes’s earliest treatises, the *Regulae ad directionem ingenii* (*Rules for the Direction of the Mind*), likewise left uncompleted and not published in Descartes’s lifetime. However, it is highly unlikely that Spinoza was acquainted with the *Regulae*. The work did not appear in print until a Dutch translation in 1684, seven years after Spinoza’s death. To be sure, it is not impossible that manuscript copies of the work circulated in Cartesian circles in the Netherlands (and especially Amsterdam) in the late 1650s and early 1660s; and it is conceivable that by the late 1650s, just when Spinoza was writing his own treatise on improving the mind and its operations, one of these copies ended up in the hands of Jan Hendriksz Glazemaker, a member of Spinoza’s circle of friends who began translating Descartes’s works into Dutch in the late 1650s.[20] But unless some evidence emerges that supports such a hypothesis, the *Regulae* must remain outside of Spinoza’s ken.[21]

(p. 668) The more likely primary model for Spinoza when he was composing the *TIE* was Descartes’s *Discourse on Method*. (A Dutch translation of the *Discourse* by Glazemaker appeared in 1656, published in Amsterdam by Jan Rieuwertsz, another member of Spinoza’s circle). Both the *TIE* and the *Discourse* begin with autobiographical intellectual itineraries narrating the author’s growing recognition of what is and is not genuinely valuable in this world, and the beginning of his search for what best contributes to good

living. For both thinkers, the key to improving the condition of one’s life is finding a sure way for directing one’s thoughts such that one is able to discern the true from the false, and thereby acquire certain knowledge of things. What is needed is a proper method for clarifying and ordering one’s ideas so that “one arrives at a true understanding of everything within one’s capacity”, in Descartes’s words (*Regulae*, Rule 4, AT X.372/CSM I.16). Or, as Spinoza puts it, before acquiring the understanding of Nature and the condition that constitutes our highest good, “we must devise a way of healing the intellect, and purifying it, as much as we can in the beginning, so that it understands things successfully, without error and as well as possible” (*TIE*, Spinoza 1925: II.9/Spinoza 1985: 11). For Descartes, a properly directed mind will arrive at “clear and distinct perceptions”; for Spinoza, it will acquire “true and adequate ideas”.

Descartes’s method consists mainly in breaking complex problems down into simpler ones, arriving finally at an intuition of the most “simple natures”. One then reverses the procedure so that, after resolving the more basic questions, one can properly address the more composite ones. Spinoza agrees that “if, in thought, we divide a thing that is composed of many things into all its most simple parts, and attend to each of these separately, all confusions will disappear” (*TIE*, Spinoza 1925: II.24/Spinoza 1985: 29). He believes, however, that beyond this general procedural guideline, “the most perfect method” consists in first uncovering a true idea as a “standard”—ideally, “the idea of the most perfect Being”, which, he claims, is innate in the mind—and then ordering our other ideas in such a way that, connecting them with this idea of a perfect Being and with the ideas of “the fixed and eternal things” in Nature that follow from it, they mirror the true causal order of Nature. One thereby comes to a knowledge of the essences of things. “We have shown that a true idea is simple, or composed of simple ideas; that it shows how and why something is, or has been done; and that its objective effects [i.e. ideas] proceed in the soul according to the formal nature of its object [i.e. things in nature] … our mind will then reproduce Nature as much as possible. For it will have Nature’s essence, order, and unity objectively” (*TIE*, Spinoza 1925: 32, 36/Spinoza 1985: 37, 41).

Interestingly, the *TIE* and the *Discourse* also include similar provisional moral guidelines one is to follow in ordinary life while engaged in this epistemological project of getting the intellect onto the right path. Descartes’s code includes “obeying the laws and customs of my country” and “trying always to master myself rather than fortune, and change my desires rather than the order of the world” (*Discourse on Method* III, AT VI.23–5/CSM I.122–3). Spinoza’s “rules of living” likewise direct him “to conform to those customs of the community that do not conflict with our aim”, and “to enjoy pleasures just so far as suffices for safeguarding our health” and “to seek money, or anything else, just so far as suffices for sustaining life and health” (*TIE*, Spinoza 1925: II.9/Spinoza 1985: 12).

(p. 669) The author of the *TIE* still seems beholden to a basic Cartesian metaphysics. For example, Spinoza appears to offer a standard Cartesian dualist understanding of the relationship between mind and body in a human being. He apparently has not yet arrived at his mature view that the mind and the body are “one and the same thing” expressed under different attributes; rather, he notes in the *TIE*—very much as Descartes does in the

Discourse and the *Meditations*—that sensation is our evidence that “the soul is united to the body”, suggesting that these are two distinct things (if not quite distinct *substances*) (*TIE*, Spinoza 1925: II.11/Spinoza 1985: 14). It is only in the early 1660s, when Spinoza begins working out his own metaphysical views—first in the aborted *Short Treatise on God, Man and His Well-Being*, and then the *Ethics*—that one sees, despite similarities of language and some conceptual baggage, how far removed he really is from Descartes.[22]

4. Spinoza vs. Descartes: *Ethica*

The *Ethics*, which Spinoza began writing in the early 1660s, put aside in 1665 to work on the *TTP*, and then picked up again in the early 1670s, is Cartesian in its inspiration, in its vocabulary, and even in its appearance; after all, Descartes himself provides a geometrical presentation of his arguments for the existence of God and the distinction between the soul and the body as an appendix to his replies to the Second Set of Objections to the *Meditations*. At the same time, the *Ethics* offers a *reductio* of, and an alternative to, Descartes’s doctrine of substance, a transformation of his notion of body, a rejection of his account of the will, and a dismissal of an essential part of his theory of the passions. And then, of course, there is Spinoza’s very un-Cartesian conception of God. In short, Spinoza is best seen as a philosopher who employs Cartesian conceptual tools, but uses them to transform, and even undermine, major metaphysical, epistemological, and moral elements of that philosophy.[23]

4.1. Substance

Descartes defines substance as “a thing which exists in such a way as to depend on no other thing for its existence” (*Principles of Philosophy* I.51, AT VIIIA.24/CSM I.210). What is essential to substance, in other words, is ontological independence. Descartes (p. 670) continues by noting that “there is only one substance which can be understood to depend on no other thing whatsoever, namely, God. In the case of all other substances, we perceive that they can exist only with the help of God’s concurrence”. Thus, he concedes, “the term ‘substance’ does not apply univocally … to God and to other things”. With that equivocation in place, there is, for Descartes, a great plurality of finite substances: both thinking substances (souls) and extended or material substances (bodies).

Spinoza essentially does away with all such equivocations, with the upshot that there is only one substance, period. He likewise defines substance in terms of ontological independence, while adding a correlative epistemological or conceptual independence. “By substance I understand what is in itself and is conceived through itself, i.e., that whose concept does not require the concept of another thing, from which it must be formed” (*Ethics*, Part I, definition 3). The first fifteen propositions of the *Ethics* are devoted to demonstrating that, given this shared definition of substance, one must conclude that there is and can be only *one* substance; that that one substance is necessarily self-caused, infinite, and eternal; and that therefore it is identical with God (who is, by definition, infinite eternal substance).

What Spinoza thus seems to be saying to a Cartesian opponent is that if you really mean by substance what “depends on no other thing whatsoever”, then you have no alternative but to follow this through to its logical end and agree that God is the only substance. Or, as Spinoza puts it, “except God, no substance can be conceived” (*Ethics* I, proposition 15). Spinoza is insisting that we do away with any equivocations and admit that whatever else is, is not a substance but is “in” God, either as an attribute or a mode (*Ethics* I, proposition 15).

4.2. God

For Spinoza, there is no transcendent, supernatural deity endowed with the kind of psychological and moral characteristics essential for providential agency. Spinoza’s God is not a kind of person. Rather, God is the unique, causally active substance from which all things follow and in which all things exist—that is, God is Nature (in Spinoza’s remarkable phrase, *Deus sive Natura*).

Moreover, if God is Nature, and if God is eternal, infinite, self-caused substance, then Nature itself is eternal, infinite, and self-caused. There was no act of divine creation of Nature *ex nihilo*. Nature did not come into being, nor will it cease to be. And given that “from the necessity of the divine nature there must follow infinitely many things in infinitely many modes (i.e., everything which can fall under an infinite intellect” (*Ethics* I, proposition 16), it follows that God does not act from freedom of will, that things could not have come about in any other way, and thus that “in nature there is nothing contingent” (*Ethics* I, proposition 29). An absolute necessity governs all of Nature—both the existence of Nature itself and whatever happens within Nature according to its laws. We are thus a far cry from the kind of willful omnipotence of Descartes’s God, a God who, at least initially, acts with complete, undetermined freedom, and whose choice to (p. 671) create not just the world, but all truth whatsoever—including the so-called “eternal truths”—is absolutely arbitrary and determined by nothing, not even God’s own nature.[24]

4.3. Mind and Body

If God is the only substance, then the human mind and the human body are not substances—not in an equivocal sense, not in any sense. Spinoza thus rejects the substance dualism of Descartes. He notes that “particular things are nothing but affections of God’s attributes, or modes by which God’s attributes are expressed in a certain and determinate way” (*Ethics* I, proposition 25, corollary). This applies as much to the human mind and the human body as it does to any other individual thing in nature. Indeed, strictly speaking the mind and the body—while differing as modes of nature—are not really two separate things at all; rather, they are “one and the same thing” manifesting itself in two distinct ways.

Thought and Extension are two of God’s infinite attributes or natures. Any individual mind is a mode of the attribute Thought; it just is a finite and determinate expression of God’s infinite power through that attribute. Likewise, any individual body is a mode of the

attribute Extension; it is a finite and determinate expression of God’s infinite power through that other attribute. In fact, the human mind just *is* the expression in Thought of the same finite and determinate quantum of power that expresses itself in Extension as the body. “A mode of extension and the idea of that mode are one and the same thing, but expressed in two ways” (*Ethics* II, proposition 7, scholium). Since all modes of Thought are ideas, what this means is that the human mind is nothing but the *idea* of the human body (*Ethics* II, propositions 11–13)—or, more precisely, the mind is a complex idea made up of sub-ideas, each of which is the idea of a particular part of its corresponding body.

One way to frame the difference between Spinoza and Descartes on mind and body and on the nature of the human being is by recognizing that Descartes believed that a human being is “made up of two things which are really distinct” (Letter to Regius, January 1642, AT III.492/CSMK 206). That is, the human being is a kind of “substantial union”, a coming together of two substances to form a unity of sorts.[25] For Spinoza, by contrast, the unity and identity of the person is primary, and the bifurcation is through its diverse expressions into the mode of Thought that is the mind and the mode of Extension that is the body. There is Abraham Lincoln, and this individual is manifested in the mental realm as a particular set of ideas (Lincoln’s mind), and in the material realm as a particular collection of material parts (Lincoln’s body).

(p. 672) Part of what seems to have motivated Spinoza’s departure from Cartesian substance dualism—although he clearly does maintain a modal or “aspect” dualism about human nature—is his concern to undermine the belief in the immortality of the soul. If the human mind (and in the *Ethics*, Spinoza never uses the theologically weighted term ‘soul’) is nothing but the idea of the human body, and if “the first thing that constitutes the actual existence of a human mind is nothing but the idea of a singular thing which actually exists” (*Ethics* II, proposition 11), then the demise of the body’s durational existence is correlated with the demise of the mind’s durational existence. While there is an eternal aspect to both the mind and the body, as formal essences that exist within God’s attributes independently of the actual durational existence of a particular human being, there is no personal immortality in Spinoza’s system. Eliminating such a superstitious belief is an important part of his project to free us from psychological bondage to irrational passions (like hope and fear of an afterlife) and the consequent moral, social, and political influence of manipulative ecclesiastics in our lives.[26]

It is not only Descartes’s conception of the mind that Spinoza rejects. He also believes that Descartes’s metaphysics of body is inadequate. The two philosophers agree that extension is essential to body. However, for Spinoza a body is not, as Descartes would have it, merely a determinate parcel of inert, passive three-dimensionality. As he tells his correspondent Walther Ehrenfried von Tschirnhaus in May, 1676, “from extension as Descartes conceives it (i.e., as a mass at rest), it is not only difficult to demonstrate the existence of bodies … but completely impossible. For matter at rest, insofar as it is in itself, will persevere in rest, and will not be set in motion except by a more powerful external cause. For this reason I did not hesitate, previously, to affirm that Descartes’s principles of natural things are useless, not to say absurd” (Ep. 81, Spinoza 1925: IV.332/Spinoza 1985: 485).

Spinoza’s bodies, unlike Descartes’s bodies, are inherently active. They are endowed with what Spinoza calls *conatus*, the power of striving for perseverance in being that essentially characterizes all individuals in nature.[27] Conatus accounts for the dynamic properties of bodies. It explains why solid bodies resist penetration or decomposition, why elastic bodies respond to pressure, and why bodies move or resist motion as they do.

4.4. Will and Intellect

On Descartes’s model of the human mind, the will and the intellect constitute two distinct faculties. The intellect in the broad sense is the locus of perceptions or ideas, whether they be the clear and distinct concepts of the intellect proper or the obscure and confused ideas of sensation and imagination. The will is the mind’s faculty of judgment, and is constituted by the power to assent (or refrain from assenting) to the ideas that the (p. 673) intellect presents to it.[28] In making these judgments, the will is free. “The freedom of the will”, Descartes says, “is self-evident” (*Principles of Philosophy* I.39, AT VIIIA. 19/CSM I.205). The will may be strongly inclined by the clarity and distinctness of an idea; there are even occasions when one feels “compelled” to make the judgment one makes, without this entailing any loss of freedom. Descartes insists, in fact, that a human being is more free when acting through this inclination by the power of evidence than he is when indifferent or “inclined both ways” (*Meditations* IV, AT VII.57–8/CSM II.40). Still, the will is never absolutely, causally determined in its volitions such that it cannot act otherwise. It can always resist the inclination, however difficult that may be.

For Spinoza, by contrast, there is no such thing as freedom of the will. In fact, there is no such thing as a faculty of the mind called “the will”. Here we have clarification of something that Meijer says in his preface to the *PPC* about the difference between Spinoza and Descartes. As Spinoza puts it, “the will and the intellect are one and the same” (*Ethics* II, proposition 49, corollary). This is somewhat misleading, however, since instead of the will Spinoza recognizes only individual acts of willing. What he means is that these willings or volitions are aspects of ideas themselves, not (as they are for Descartes) mental acts directed at ideas. Every idea in the mind involves a volitional element, an affirmation or denial of some kind as an essential feature of its content. “In the mind there is no volition, or affirmation and negation, except that which the idea involves insofar as it is an idea” (*Ethics* II, proposition 49). To think of or have an idea of a unicorn just is to make a mental affirmation of a propositional sort: that a certain horse is white and has a horn on its head. In two statements that are direct swipes at the Cartesian model (albeit without explicitly mentioning Descartes), Spinoza claims that he rejects the “prejudice” that ideas are “mute pictures on a panel” (*Ethics* II, proposition 49, scholium II), and says “I deny that the will extends more widely than perceptions, or the faculty of conceiving” (*Ethics* II, proposition 49, scholium III.B.i).

These affirmations that constitute our volitional activity are no more free than anything else in nature. Like all events and states of affairs, whether physical or mental, volitions are causally determined by antecedent events or states in accordance with the laws of nature—in this case, they are determined by antecedent mental states and the laws that fol-

low from the attribute of Thought. “In the mind there is no absolute, or free, will, but the mind is determined to will this or that by a cause that is also determined by another, and this again by another, and so to infinity” (*Ethics* II, proposition 48). The belief in freedom of will is an illusion grounded in ignorance. “Men think themselves free, because they are conscious of their volitions and their appetite, and do not think, even in their dreams, of the causes by which they are disposed to wanting and willing, because they are ignorant [of those causes]” (*Ethics* I, Appendix, Spinoza 1925: II.78/Spinoza 1985: 440).

(p. 674) 4.5. Passions

In the final part of the *Ethics*—“which concerns the means or way leading to freedom”—Spinoza turns to “the power of the intellect” and the remedies it offers for the passions and the turmoil they bring to our lives. Spinoza believes that through reason and knowledge, and especially an understanding of the necessity that governs Nature and of one’s place in the causal scheme of things, one can achieve some “dominion” over the passive affects, that is, over the modifications of our condition brought about by external things. Joy and sadness, and all the emotions and desires that are different expressions of these, especially when immoderate, keep us in a kind of “bondage” as we respond (irrationally) to circumstances beyond our control. One can achieve some relief from this unhappy situation by cultivating reason, which is capable of “restraining and moderating” those affects by bringing us to an understanding of them (*Ethics* V, Preface). What reason cannot do, however, is eliminate the passions altogether. Every human being will always and necessarily be a part of Nature and thus subject to the effects of external causes.

Spinoza and Descartes agree on much regarding the role of the passions in a human life. Where Spinoza strongly takes issue with Descartes, however—and in this case he names “that most distinguished man” explicitly—is with the idea that one can achieve absolute dominion over the passions through the power of the will. “Descartes was rather inclined to this opinion”, he notes.[29] The passions in the mind, on Descartes’s view, are a function of the motions of the pineal gland in the brain and the animal spirits it directs; and the mind can, through the will, cause the gland to move this way or that by voluntarily thinking a thought that is connected with that motion. Descartes insists that while the will cannot directly arouse or suppress passions, it can do so indirectly by calling up certain ideas that are “usually joined with the passions we wish to have and opposed to the passions we wish to reject” (*Passions of the Soul* I.45, AT XI.362–3/CSM I.345). It is all about thinking of something that, through the motions of the pineal gland, is associated with the passion that one wants to feel. Through “firm and determinate judgments bearing upon the knowledge of good and evil”, a resolute person (with “strength of soul”) can thereby be in control of his passions rather than vice versa (*Passions of the Soul* I.45, AT XI.367–8/CSM I.347). Moreover, while nature has established specific connections between motions of the gland and particular thoughts and feelings in the mind, Descartes believes it is possible, through intentional habituation, to modify these connections. Rather than feeling a particular undesirable passion on the occasion of a certain situation (for example, fear in the face of danger), one can train oneself to feel a different one (courage).[30]

Spinoza’s assessment of this theory is severe. “[Descartes] infers that there is no soul so weak that it cannot—when it is well directed—acquire an absolute power over its passions” (*Ethics* V, Preface). Not only does experience shows this to be false, Spinoza (p. 675) notes, but it simply does not make any sense: “I would hardly have believed [such an opinion] had been propounded by so great a man, had it not been so subtle. Indeed, I cannot wonder enough that a philosopher of his caliber … should assume a hypothesis more occult than any occult quality” (*Ethics* V, Preface). For Spinoza, the management of the passions comes from understanding them. While this would certainly be an intentional exercise, it is not a matter of having such strength of will that one can absolutely master them, as Descartes would have it.[31]

With these departures from and attacks on fundamental elements of the Cartesian system, it is hard to disagree with one scholar’s assessment that, contrary to the view of his earliest critics, “Spinoza’s philosophy should indeed no longer be understood mainly as a product of the Cartesian revolution, but rather as a decisive break with the philosophy of Descartes.”[32]

There is, of course, much more to be said about Spinoza’s relationship to Descartes and Cartesianism. The reaction among Cartesians to Spinoza’s philosophy after 1677, once they get the full picture with the posthumous publication of the *Ethics*, is an important part of the story. Reading this work certainly confirmed their worst fears about his “atheism”, his “fatalistic” determinism, and his denial of free will. But that goes beyond the scope of this chapter.[33]

References

Ab Andlo, Petrus (Regnier van Mansvelt) (1671), *Animadversiones ad Vindicias Dissertationis quam Samuel Maresius edidit de abusu Philosophiae Cartesianae*. Leiden: Lopez de Haro.

Ab Andlo, Petrus (Regnier van Mansvelt) (1672), *Specimina Bombomachiae Samuelis Maresii se defendentis Clypeo Orthodoxiae*. Leiden: Lopez de Haro.

Benigni, Fiormichele (2017), “Questioning Mechanism: Fénelon’s Oblique Cartesianism”, *British Journal for the History of Philosophy* 25: 663–80.

Blijenbergh, Willem van (1674), *De Waerheyt van de Christelijke Godts-dienst en de Authoriteyt der H. Schriften*. Leiden: Daniel van Gaesbeeck.

Bos, Erik-Jan (1999), “La première publication de la Recherche de la vérité en 1684: Onderzoek der waarheit door’t naturelijk licht”, *Nouvelles de la République des Lettres* 1: 13–26.

Bouillier, Francisque (1868), *Histoire de la philosophie cartésienne*, 2 vols. Paris: Delagrave.

Bredenburg, Johannes (1675), *Enervatio Tractatus Theologico-Politici*. Rotterdam: Isaac Naeranus.

Brunschvicg, Leon (1923), *Spinoza et ses contemporains*, 3rd edition. Paris: Presses Universitaires de France.

De Vet, J. J. V. M. (1991), “Letter of a Watchman on Zion’s Walls: The First Reaction of Johannes Melchior to *Tractatus Theologico-Politicus*”, in Paolo Cristofolini (ed.), *L’Hérésie Spinoziste: La discussion sur le Tractatus Theologico-Politicus, 1670–1677* [*The Spinozistic Heresy: The* (p. 676) *Debate on the Tractatus Theologico-Politicus, 1670–1677*]. Amsterdam: APA-Holland University Press, 36–48.

Douglas, Alexander (2015), *Spinoza and Dutch Cartesianism*. Oxford: Oxford University Press.

Garber, Daniel (2015), “Spinoza’s Cartesian Dualism in the *Korte Verhandling*”, in Yitzhak Y. Melamed (ed.), *The Young Spinoza: A Metaphysician in the Making*. Oxford: Oxford University Press, 121–32.

Geulincx, Arnold (1675), *Arnoldi Geulincs, Gnôthi seauton, sive Ethica*, with preface by Cornelis Bontekoe. Leiden: A. Severini.

Gootjes, Albert (2014–15), “Le réseau cartésien d’Utrecht face au *Tractatus theologico-politicus*: esquisse d’une campagne anti-Spinoziste”, *Bulletin Annuel de l’Institute d’Historie de la Réformation* 36: 49–54.

Gootjes, Albert (2018), “The First Orchestrated Attack on Spinoza: Johannes Melchioris and the Cartesian Network in Utrecht”, *Journal of the History of Ideas* 79 (1): 23–43.

Hoffman, Paul (1991), “Three Dualist Theories of the Passions”, *Philosophical Topics* 19: 153–200.

Israel, Jonathan (2001), *Radical Enlightenment: Philosophy and the Making of Modernity*. Oxford: Oxford University Press.

Klever, Wim (1989), “Spinoza’s Fame in 1667”, *Studia Spinozana* 5: 365–8.

Krop, Henri (2004), “Spinoza en het calvinistich cartesianisme van Lambertus van Velthuysen”, in Gunther Coppens (ed.), *Spinoza en het Nederlands Cartesianisme*. Leuven: Acco, 61–78.

Mansvelt, Regnier van (1674), *Adversus Anonymum Theologo-Politicum*. Amsterdam: Abraham Wolfgang.

Maresius, Samuel (1670), *Vindiciae Dissertationis suae nuperae de abusu philosophiae Cartesianae*. Groningen: Tierck Everts.

Maresius, Samuel (1671), *Clypeus orthodoxiae sive vindiciarum pro sua dissertatione de abusu philosophiae Cartesianae opposatarum P. ab Andlo*. Groningen: Tierck Everts.

Melchior, Johannes (1671), *Epistola ad amicum, continens Censuram Libri, cui titulus: Tractatus Theologico-Politicus*. Utrecht: Cornelis Noenaert.

Nadler, Steven (2005), “Descartes’s Soul, Spinoza’s Mind”, in Tad Schmaltz (ed.), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*. London and New York: Routledge, 99–112.

Nyden-Bullock, Tammy (2007), *Spinoza’s Radical Cartesian Mind*. London: Continuum.

Sánchez Estop, Juan Domingo (1987), “Spinoza, Lecteur des *Regulae*”, *Revue des Sciences philosophiques et théologiques* 71: 55–66.

Schmaltz, Tad (2017), “Spinoza and Descartes”, in Michael Della Rocca (ed.), *The Oxford Handbook of Spinoza*. Oxford: Oxford University Press, 63–83.

Spinoza, Benedictus (1925), *Spinoza Opera*, ed. Carl Gebhardt, 4 vols. Heidelberg: Carl Winters.

Spinoza, Benedictus (1985), *The Collected Works of Spinoza*, vol. 1, ed. and trans. Edwin Curley. Princeton: Princeton University Press.

Spinoza, Benedictus (2016), *The Collected Works of Spinoza*, vol. 2, ed. and trans. Edwin Curley. Princeton: Princeton University Press.

Thijssen-Schoute, C. Louise (1951), “Le cartésianism aux Pays-Bas”, in E. J. Dijksterhuis (ed.), *Descartes et le cartésianisme hollandais*. Paris: Presses Universitaires de France/ Amsterdam: Editions Françaises d’Amsterdam, 183–260.

Thijssen-Schoute, C. Louise (1989 [1954]), *Nederlands Cartesianisme*, 2nd edition. Utrecht: Hes & De Graaf Uitgevers.

Van Bunge, Wiep (1989), “On the Early Dutch Reception of the *Tractatus Theologico-Politicus*”, *Studia Spinozana* 5: 225–51.

(p. 677) Van Bunge, Wiep (1991), “Van Velthuysen, Batelier and Bredenburg on Spinoza’s Interpretation of the Scriptures”, in Paolo Cristofolini (ed.), *L’Hérésie Spinoziste: La discussion sur le Tractatus Theologico-Politicus, 1670–1677* [*The Spinozistic Heresy: The Debate on the Tractatus Theologico-Politicus, 1670–1677*]. Amsterdam: APA-Holland University Press, 49–65.

Van Bunge, Wiep (2001), *From Stevin to Spinoza: An Essay on Philosophy in the Seventeenth-Century Dutch Republic*. Leiden: Brill.

Van Rooijen, A. J. Servaas (1888), *Inventaire des livres formant la bibliothèque de Bénédict Spinoza*. The Hague: W. C. Tengeler/Paris: Paul Monnerat.

Van Ruler, Han (1999), “Geulincx and Spinoza: Books, Backgrounds and Biographies”, *Studia Spinozana* 15: 89–106.

Velthuysen, Lambert van (1668), *Dissertatio de usu rationis in rebus theologicis*. Utrecht: Ackersdyck.

Verbeek, Theo (1991), “Les Cartésiens face à Spinoza: l’exemple de Johannes de Raey”, in Paolo Cristofolini (ed.), *L’Hérésie Spinoziste: La discussion sur le Tractatus Theologico-Politicus, 1670–1677* [*The Spinozistic Heresy: The Debate on the Tractatus Theologico-Politicus, 1670–1677*]. Amsterdam: APA-Holland University Press, 77–88.

Verbeek, Theo (1999), “Spinoza and Cartesianism”, in Allison P. Coudert, Sarah Hutton, Richard H. Popkin, and Gordon M. Weiner (eds.), *Judaeo-Christian Intellectual Culture in the Seventeenth Century*. Dordrecht: Kluwer, 173–84.

Notes:

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(1) As Gootjes (2018) notes, in April of 1670 the Utrecht consistory of the Dutch Reformed Church commissioned its *directores* to petition the city burgomasters “to take appropriate measures” against this “profane and blasphemous book”. This would be only the first of many such efforts over the next several years. In his letter to Oldenburg, Spinoza must be referring to renewed efforts, in light of the rumor, that the author of the *Theological-Political Treatise* (*TTP)* was about to publish another book.

(2) Blijenbergh 1674.

(3) Bredenburg 1675.

(4) That Bontekoe may have been among those whom Spinoza had in mind is suggested by Van Ruler (1999: 89–92) and, in correspondence with me, Erik-Jan Bos. In his preface to the complete edition of Geulincx’s *Ethica* which he published in 1675, thus around the time of Spinoza’s letter to Oldenburg, Bontekoe—who had been Geulincx’s student at Leiden—complains about “a growing sect of philosophers who pretend to be Cartesians”. What bothers Bontekoe about these false Cartesians is that they identify God with the world, claim that the world is eternal, insist that everything happens with necessity, and defend other Spinozist theses (Geulincx 1675: unpaginated but pp. vi–vii). Bontekoe, then, without naming Spinoza explicitly, appears to be attacking him in the name of the Cartesians. On the other hand, as Van Ruler notes, it is not clear that Bontekoe brought out his edition of Geulincx *before* Spinoza’s letter to Oldenburg.

(5) Based on the friendly and constructive correspondence between Spinoza and Velthuysen in 1676, it is unclear whether Spinoza at this point would have considered Velthuysen disdainfully among the “stupid” Cartesians.

(6) These attacks on Spinoza were not published until 1680, after Spinoza had died.

(7) On this episode, see Israel 2001: 210–11.

([8]) For example, in his *Dissertatio de usu rationis in rebus theologicis*; see Velthuysen 1668. On Velthuysen’s views and his reaction to Spinoza, see Van Bunge 1991: 49–59, and Krop 2004. As Douglas (2015: 107) notes, “Velthuysen was probably motivated to respond critically to Spinoza’s arguments [in the *TTP*] since they looked similar to some of his own.”

([9]) Mansvelt’s surprise that he, via his pseudonym Petrus Ab Andlo, is taken by Desmarets to be a *Spinosae Discipulum* also appears in Ab Andlo 1672: 8.

([10]) In June 1674, and referring to Van Mansvelt’s *Adversus anonymum theologico-politicum*, Spinoza wrote to Jarig Jellesz to say that “I have seen in a bookseller’s window the book the Utrecht professor wrote against mine, which was published after his death. From the few things I read at that time, I decided it was not worth reading, much less answering. So I left the book lying there, along with its author. I smiled to myself that the most ignorant are generally the boldest and the readiest to write” (Ep. 50, Spinoza 1925: 4:241/Spinoza 2016: 407). And yet, Spinoza did own a copy of this treatise; see item 41 in Van Rooijen 1888 (161). Van Mansvelt died in 1671, and therefore could not have been among the “stupid Cartesians” who, in 1675, were “still at it”. For a general discussion of the early Dutch philosophical reception of the *TTP*, especially among his Cartesian critics, see Van Bunge 1989.

([11]) On Graevius’s role in the campaign against Spinoza, see the letters discovered by Gootjes (2014–15: 52–3).

([12]) In the first printing of Melchior’s treatise, the anagram is misprinted as ‘Xinospa’.

([13]) Melchior 1671: 3–6. For a study of Melchior’s *Epistola*, see De Vet 1991.

([14]) Gootjes 2018. It is also worth mentioning the anti-Spinoza tracts from Blijenbergh (*De Waerheyt van de Christelijke Godts-dienst en de Authoriteyt der H. Schriften*, 1674) and Bredenburg (*Enervatio Tractatus Theologico-Politici*, 1675). Van Ruler (1999: 92, n. 7) suggests that these works—published close to Spinoza’s letter to Oldenburg—as well as works by Bontekoe and Velthuysen, might have been what proximately incited Spinoza’s complaint about the “stupid Cartesians”.

([15]) Gootjes 2018: 50, n. 8. In his informative study, Gootjes speaks of an “orchestrated attack” emanating from the Utrecht circle against Spinoza. See also Gootjes 2014–15.

([16]) It is unclear how much Spinoza really knew about the machinations that were going on in Utrecht, aside from what was actually published by Mansvelt; however, the fact that Melchior’s *Epistola* was published in Utrecht must have tipped him off that it had some connection to the Cartesians in that city.

([17]) Ep. 18, Spinoza 1925: IV.79–85/Spinoza 1985: 354–7. On the early contemporary perception of Spinoza as a Cartesian, see Klever 1989.

([18]) A comparison of Meijer’s preface to the *PPC* with his correspondence with Spinoza at this time shows that often he is simply repeating what Spinoza has asked him to say; see, for example, Ep. 15 (Spinoza 1925: IV.72/Spinoza 1985: 215).

([19]) Classic studies of Spinoza’s relationship to Descartes and Cartesianism include Bouillier 1868, Brunschvicg 1923, and Thijssen-Schoute 1989 [1954]. More recent studies include Verbeek 1991, Van Bunge 1991 and 2001, Nyden-Bullock 2007, Douglas 2015, and Schmaltz 2017. See also the following volumes of *Studia Spinozana*: vol. 10 (“Spinoza and Descartes”) and vol. 15 (“Spinoza and Dutch Cartesianism”).

([20]) Sánchez Estop (1987: 57–8) argues for Spinoza’s familiarity with the *Regulae*; Thijssen-Schoute (1951: 191) identifies Glazemaker as the relevant translator.

([21]) Bos (1999) argues convincingly that the *Regulae* was not circulating in the Netherlands before 1678, and certainly not as early as the late 1650s. He also dismisses the claim that Glazemaker (who died in 1682) was its eventual Dutch translator for the 1684 edition published by Rieuwertsz; rather, Bos argues, it was Pieter van Gent.

([22]) Garber (2015), however, argues that even in the *Short Treatise* Spinoza offers a Cartesian dualism, with the mind and the body being distinct “things”, albeit modes rather than substances.

([23]) Van Bunge (2001: 121) suggests that Spinoza “thought it appropriate to use the vocabulary of Cartesianism to formulate his own views” as a strategy “to raise support for these views, especially among Dutch Cartesians”—a strategy that, of course, failed. “[Spinoza] was simply mistaken in his assessment of the willingness of Dutch Cartesians to further explore the philosophical possibilities implied by the Cartesian breakthrough in the Dutch Republic.”

([24]) See, for example, Descartes’s letters to Mersenne in May 1630 (AT I.148–54).

([25]) “United in a real and substantial manner” is the phrase that Descartes uses when directing his unruly Utrecht disciple Henricus Regius on how to convey the notion that a human being is an *ens per se* and not merely an *ens per accidens* (Letter to Regius, January 1642, AT III.492–3/CSMK 206). Just what that “substantial unity” is supposed to be has long been debated by Cartesian scholars. Is the human being a substance in its own right, a third species of substance?

([26]) On this, see Nadler 2005.

([27]) See *Ethics* III, propositions 6–8.

([28]) This model is most clearly presented in the *Meditations*, Meditation IV, and the *Principles of Philosophy*, I.32–9.

([29]) Spinoza is referring to Descartes’s discussion in *The Passions of the Soul*, I.44–50.

([30]) *The Passions of the Soul*, I.50.

([31]) For a comparative study of Descartes and Spinoza on the passions, see Hoffman 1991.

([32]) Van Bunge 2001: 122.

([33]) The efforts by Cartesians (such as Lamy, Régis, and Fénélon) to attack Spinozism and distance themselves from this “atheistic and materialistic” philosophy and thereby provide a defense of the Cartesian system (especially its physics) only intensified in the final decades of the seventeenth century and the early decades of the eighteenth; see Benigni 2017.

Steven Nadler

Steven Nadler is the William H. Hay II Professor of Philosophy, Evjue-Bascom Professor in Humanities, and Weinstein-Bascom Professor of Jewish Studies at the University of Wisconsin-Madison, where he has been teaching since 1988. He has been the editor of the Journal of the History of Philosophy, and President of the Central Division of the American Philosophical Association. Nadler previous publications include A Book Forged in Hell: Spinoza's Scandalous Treatise and the Birth of the Secular Age (Princeton, 2011), The Philosopher, the Priest and the Painter: A Portrait of Descartes (Princeton, 2013), Spinoza: A Life (Cambridge, 1999/2018, winner of the Koret Jewish Book Award), Rembrandt's Jews (Chicago, 2003, finalist for the Pulitzer Prize), Menasseh ben Israel: Rabbi of Amsterdam (Yale, 2018), and the graphic book Heretics! The Wondrous (and Dangerous) Beginnings of Modern Philosophy (Princeton, 2017) with his son Ben Nadler.

Simon Foucher and Anti-Cartesian Skepticism

Michael W. Hickson

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Historians of philosophy have read Simon Foucher both as a Cartesian philosopher wedded to the basic principles of Descartes's philosophy, and also as a fierce anti-Cartesian skeptic whose writings may be responsible more than anyone else's for the "downfall of Cartesianism". This chapter argues that this "Foucher enigma" arises because Foucher's writings, when considered in themselves, are Cartesian in spirit even when they criticize Descartes. But taken in the context of the wave of late seventeenth-century French skepticism, Foucher's writings contribute to a devastating attack on Descartes's criterion of truth. The conclusion is that, perhaps like Descartes, Foucher was a skeptic *malgré lui*.

Keywords: Simon Foucher, skepticism, criterion of truth, evidence, idealism

(p. 678) 1. Introduction

SIMON Foucher (1644–96) was a Parisian intellectual and Catholic priest with wide-ranging interests in philosophy, science, literature, history, and theology. Although his name has been all but forgotten, Foucher was well known and respected by the most famous philosophers of his day. A frequent correspondent of Pierre-Daniel Huet (1630–1721), Foucher was the first to publish objections to the system of Nicolas Malebranche (1638–1715) and to both the monadology and theory of established harmony of G. W. Leibniz (1646–1716). In addition to these critical works, Foucher published a series of books expounding what he called the "Academic philosophy" (Foucher 1673, 1675, 1687, 1693). His goal was to produce a complete system of philosophy, but he died before the work was completed. The Academic writings that we do have constitute the introductory parts devoted to Foucher's Logic. In light of these works, understanding the place of Foucher in the history of Cartesianism, even on the most general level, is anything but straightforward. Solid arguments can be made for both the claims that Foucher was a Cartesian and that he was a fierce anti-Cartesian, even one that is chiefly responsible for the "downfall of Cartesian metaphysics" (as Richard Watson has argued).

The best example of this Foucher paradox—that Foucher can be considered both radically anti-Cartesian and fundamentally Cartesian—is provided by one of the earliest historians of the reception of Descartes's philosophy, Adrien Baillet (1649–1706). Foucher appears twice in Baillet's *La Vie de Monsieur Descartes* in a span of 100 pages. The first time we encounter Foucher is in the story of the return of Descartes's remains to Paris in 1667. Funeral arrangements are being made and somebody must be chosen to give the eulogy. Two philosophers are selected: Claude Clerselier (1614–84) will give (p. 679) what appears to be the main eulogy, and since Foucher is in Paris, Jacques Rohault (1618–72) asks him to give a second eulogy on a different day in a different place (Baillet 1691: 439). If this is true, then we have solid evidence that Foucher was not merely a Cartesian, but a Cartesian-with-clout in 1667. Then we meet Foucher a second time in Baillet's *Vie*, in a chapter devoted to the many accusations of unoriginality, if not plagiarism, with which Descartes was met. Foucher is the *first* accuser discussed by Baillet (Baillet 1691: 532). Called the "restorer of the Academic philosophy" by Baillet, Foucher is treated as the main critic of Descartes to have charged him with taking his main ideas from Plato and other ancient Academic philosophers. Foucher indeed critiqued Descartes along these lines. So what are we to make of a philosopher who may have eulogized Descartes in 1667, only to treat Descartes's philosophy as second- or third-hand Platonism several years later? Interestingly, Baillet does not even acknowledge the tension between these two appearances of Foucher in his work.

One way to resolve this tension is to question the veracity, or at least the implications, of Baillet's claim that Foucher was invited to eulogize Descartes. All of the most important recent Foucher scholars have done this, but they have arrived at different conclusions. Félix Rabbé (1834–1900) takes Baillet at his word and concludes that Foucher was among the "devout partisans" of Descartes's philosophy in 1667 (Rabbé 1867: 4–5), but later changed his philosophical outlook. However, since Foucher himself tells us that he was already trying out his main objection to Descartes's philosophy on Rohault in 1667 (Foucher 1675: 45–7), Henri Gouhier (1898–1994) concludes that Foucher was not a Cartesian but a skeptic at that time, though he may well have been asked to give a funeral oration anyway, since he could provide an objective perspective on Descartes's accomplishments (Gouhier 1927; see Watson 1987: 33). Watson doubts that Foucher was even asked to deliver a funeral oration. Foucher was a vain man, carefully documenting his own accomplishments in his works; so if he had been given such a great honor, then he would have told us about it. Moreover, only Baillet mentions the request; neither Clerselier nor Rohault ever mentions Foucher giving, or being asked to give, any kind of eulogy for Descartes (Watson 1987: 33–4). Given the scarcity of historical evidence, however, we will probably never know whether, or on what conditions, or for what reason, Foucher was asked to deliver a funeral oration for Descartes.

Foucher comes across as a paradox in Baillet's work largely because he is discussed only briefly and in two short paragraphs. Perhaps some elaboration on Baillet's part would have resolved the tension between those discussions. However, for different reasons Foucher remains an enigma for the historian of philosophy today, even several decades after significant interest in Foucher was renewed by some the best scholars of early mod-

ern philosophy in recent memory. The earliest result of the careful attention paid to Foucher by Richard Popkin (1923–2005), Richard Watson, José R. Maia Neto, and others was a historical narrative according to which Foucher was part of a wave of anti-Cartesian French skepticism at the end of the seventeenth century. The other main figures in this movement were Pierre Bayle (1647–1706) and Huet who, along with Foucher, have even been dubbed the "three skeptical musketeers" (Pelletier 2013: 51). According to Popkin, Foucher "saw himself as the reviver of Academic skepticism" (p. 680) (Popkin 2003: 275) and he "provided some crucial refurbished skeptical arguments to meet the developing new dogmatism—Cartesianism" (Popkin 2003: 277). Watson, a student of Popkin's, argues that "Simon Foucher is important in the history of modern philosophy as a sceptic who originated epistemological criticisms that are fatal to the Cartesian way of ideas. His method is that of the traditional sceptic: He assumes the principles of the system under analysis and then reasons to contradictory conclusions" (Watson 1987: 33; see also Watson 1966, 1969). Another student of Popkin's, Maia Neto, argues that "Foucher's Academic skepticism is one of the most important sources of the skepticism held by the two greatest early modern skeptics: Pierre Bayle and David Hume" (Maia Neto 1997: 215). As we will see in Section 2, the portrayal of Foucher as an Academic-skeptical critic of Descartes and Cartesianism is plausible and well grounded in numerous texts.

However, the same texts that provide a basis for considering Foucher a skeptic contain arguments that do not cohere well with this interpretation at all: arguments that defend Descartes's criterion of truth; arguments that prove the existence of God; arguments that praise the accomplishments of modern science; arguments *against* skeptical objections of the sort that we find especially in Huet. Many of these anti-skeptical elements of Foucher's thought even sound downright Cartesian, leading Watson and Maia Neto to soften their initial skeptical interpretation of Foucher, and even to begin to speak of the Cartesianism of Foucher's thought. In Watson's most recent account of Foucher, for example, he says that "Foucher was something of a Cartesian in his adherence to the method of doubt in the search for knowledge, but he eschewed the dogmatism of doctrinaire Cartesians, among whom he ranked Malebranche" (Watson and Grene 1995: 6). And Maia Neto's most recent moniker for Foucher is no longer "Academic skeptic", but "Academic Cartesian" (Maia Neto 2003: 71). So the Foucher paradox or enigma or dilemma is still very much alive: was Foucher a eulogizer of Descartes or one of his staunchest critics? Was Foucher a Cartesian searcher after truth or an anti-Cartesian skeptic? In what follows I take each horn of the dilemma in turn, before turning to my own interpretation of the place of Foucher in the history of (anti-)Cartesianism and late seventeenth-century French skepticism.

2. Foucher and the "Great Cartesian Prejudice"

To the extent that Foucher is known at all among Anglophone philosophers today, he is known for a series of skeptical arguments against what he considered the "great Cartesian prejudice" (Foucher 1693: 76), namely that ideas in the mind can represent things outside of the mind. Foucher's attack on this supposition was repeated by Bayle in his

Dictionary in the seventeenth century, and later adapted and made famous by Berkeley and Hume in the eighteenth century. Foucher's reputation as a skeptic is based (p. 681) largely on this skeptical attack against the Cartesians, taken out of the context of Foucher's larger philosophical project. In this section I explore this skeptical argument on its own in order to motivate the skeptical reading of Foucher's relation to Cartesianism, while in Section 3 I will situate this skeptical argument within Foucher's other philosophical writings, which will render Foucher's relation to Cartesianism more complex.

In 1673 Foucher had several copies printed of a short work of his entitled *Dissertations sur la recherche de la vérité, ou sur la logique des academiciens* (Foucher 1673). No copies of this work have ever been found; in fact, Foucher apologized to Leibniz that he himself could not find a copy of the work to give to him. The next year, 1674, Malebranche published the first three Books of *De la recherche de la vérité*, which according to Foucher touched on much the same material that interested Foucher in his similarly titled 1673 work. Perhaps because he was frustrated that Malebranche had scooped him, or perhaps because he felt strongly that the subject matter was important, Foucher wasted no time in publishing his *Critique de la recherche de la vérité ou l'on examine en même temps une partie des principes de Mr. Descartes. Lettre par un Academicien* (Foucher 1675). As the full title of this work indicates, its goal is to critique Malebranche's *Recherche*, but also to launch a broader attack against the foundations of Descartes's philosophy and to offer an introduction to the philosophy of the ancient Academics, as Foucher understood it.

Foucher's (1675) *Critique* is a catalogue of unproven assumptions that form the basis of Malebranche's *Recherche*. The three most egregious "suppositions", which exhibit the "great Cartesian prejudice", are that there are ideas that represent what is outside of us; that ideas can represent objects without being like those objects; and that we can know by the senses that there is extension outside of us (Watson and Grene 1995: 29–38). Foucher's strategy against these suppositions is to argue that there is no way to distinguish with certainty which ideas represent objects outside of us and which ideas represent only modes of our mind. Foucher launches his attack from the starting point of Cartesian dualism (which is the first unproven supposition that Foucher attacks in his *Critique*): that minds are thinking, non-extended created substances, and that bodies are non-thinking, extended created substances. The lesson of Foucher's skeptical exercise is that Cartesian dualism entails external world skepticism.

Foucher begins by noting that according to Descartes and Malebranche, all ideas are ways of being of the mind. But there is nothing in the mind, which is unextended, that is anything like extended substance. No ideas, therefore, can bear *any* resemblance to material objects that they allegedly represent. It follows that there are no ideas in the mind that resemble extended objects more than do other ideas in the mind, from which Foucher concludes: "either … all our ideas represent material objects to us, or … we do not have any ideas that are capable of representing material objects to us. And this ruins equally all the claims of this [Malebranche's] work" (Watson and Grene 1995: 30).

One way to answer Foucher's criticism of the first supposition is to posit that ideas can represent objects without resembling them. This is the next supposition to which Foucher turns his skepticism. "If [ideas] can *represent* without being *like*, not only all the ideas we have, whether in our senses, imagination, or some other way whatever it be, have as much right to *represent*, the ones as much as the others, but all our ideas, whatever (p. 682) they are, would be able to represent one and the same object, a position one cannot support" (Watson and Grene 1995: 32). If ideas could be like material objects, and if representation were based in likeness, then one idea would gain more "right" to represent some material object than another idea by being more like the object. Not all ideas could represent the same object because not all ideas would be sufficiently like that object in order to represent it. But if we take away the capacity of ideas to resemble objects, and we thereby separate the notions of representation and resemblance, as Foucher believes the Cartesians and in particular Malebranche do, then we find ourselves without a natural criterion for determining which idea represents which object. Perhaps God undertakes the pairing of ideas and objects, but then mental representation leaves the realm of philosophy and enters the realm of theology, two sciences that Foucher distinguishes as starkly as anyone in his period (Watson and Grene 1995: 26). So wary is Foucher of mixing philosophy and theology that he may well be worth studying (in a different context) for his important role in the secularization of philosophy.

It is on the basis of passages like the following one that Foucher has been considered a fairly traditional skeptic, whose aim was to create and permanently maintain a distance between ideas in the mind and the essence of the reality outside of the mind:

> if our ideas represent these [material] things to us, it is necessary that they cause the same effect in us that these things would if they were present, by causing us to know what they are in themselves, and not the ways of being that these same things would excite in us if they acted through our senses. For as these ways of being are not *like* these things, following the acknowledgment of these philosophers, these ideas would not represent these things, but represent only their effects. So to represent these things as they are in themselves it is necessary that our ideas dispose us exactly as though the things were now in us and were *immediately* present to us. For this it is necessary that our ideas cause an effect in our soul that is at least *like* the effect the things would cause if they were really there, which these ideas could not do unless they were *like* the things.
>
> (Watson and Grene 1995: 32–3)

Traditional skeptics are those philosophers who work to create a permanent, unbridgeable divide between the world outside the mind and the ideas in the mind. Foucher's arguments against Malebranche certainly aim at this goal.

The last Cartesian supposition that Foucher attacks is that we can know extension by means of our senses. He argues by *reductio* that if we accept this supposition, then it would follow that our soul is extended. This is because, according to the Cartesians, sensation is merely passive, and amounts to changes *in us* produced by objects. This entails

that by means of sensation we know only modes of our own souls. If we know extension by means of sensation, then extension must be a possible mode of our soul. Our souls must be extended, or extendable, things—a conclusion that undermines the foundation of Cartesian philosophy (Watson and Grene 1995: 36).

The merits of these skeptical arguments—whether they demonstrate understanding of orthodox Cartesianism at the time or whether they succeed in undermining foundational aspects of Descartes's metaphysics—are questions that Watson has explored (p. 683) exhaustively in a work that all scholars interested in Foucher must read, *The Breakdown of Cartesian Metaphysics* (Watson 1987). My goal in the rest of this chapter, however, is to challenge the portrayal of Foucher by Watson and others as an *anti*-Cartesian, skeptical thinker. This portrayal is possible only if we limit our attention to a few ingenious skeptical arguments that Foucher deployed against Descartes and his followers. The overwhelming impression that the rest of Foucher's works gives is that he was a non-skeptical Cartesian philosopher single-mindedly focused on perfecting a method for discovering truth, a method that Foucher found in the works of ancient Academic philosophers, and that Foucher believed Descartes had rehabilitated, though misapplied.

3. Foucher, Academic Philosophy, and Descartes

According to Foucher, the ancient Academic philosophers were misunderstood largely because people attributed to them positions they held only dialectically. Because the Academics were often embroiled in debates with dogmatic Stoics surrounding issues related to the possibility of knowledge and the criterion of truth, the Academics gained a reputation for being skeptics. But on Foucher's interpretation, Academics are not skeptics, despite their adeptness at wielding skeptical arguments against their opponents' positions. (For more on Foucher's interpretation of the ancient Academic philosophers, see Maia Neto 2003, Charles 2013, and Hickson 2018). Whether or not Foucher's diagnosis of the misunderstanding of the Academy is correct or not, he seems to have hit upon the reason for the frequent misunderstandings of *himself*. Foucher's skeptical arguments against the possibility of knowledge of the nature of the external world are spectacular, and they have a tendency to outshine the rest of Foucher's philosophical writings. But these skeptical arguments by no means capture the overall spirit of Foucher's project, which, far from being skeptical and anti-Cartesian, is, in his own words, dogmatic and very closely tied to Cartesianism.

Foucher's main philosophical works (1673, 1675, 1687, and 1693) are all intended to clarify the correct method of philosophizing. Even the fairly narrow critique of Malebranche in 1675 is worthwhile in Foucher's mind only because it "will give me occasion to justify the manner of philosophizing that I have observed in the *Dissertations*" (i.e. Foucher 1673). The skepticism that is employed in Foucher's writings, including in his critique of Malebranche, is never an end-in-itself; in fact, only those who are misinformed could ever think that Academic philosophers were skeptics (Foucher 1687: 2). Nevertheless, skepti-

cism, or at least extreme intellectual caution, does play an important role in the Academic way of philosophizing, which is reducible to five laws, which bear striking resemblance to the laws that Descartes establishes for the discovery of truth in the *Discourse*: 1) Proceed only by means of demonstration in philosophy; 2) Do not consider questions that cannot be decided clearly; 3) Admit that you do not know that of (p. 684) which you are ignorant; 4) Distinguish the things you know from the things that you do not know; 5) Always search for new truths (see Foucher 1687: 5–9).

The role of skepticism in Foucher's philosophy is very similar to the role that skepticism plays in Descartes's First Meditation: to distinguish what we know with certainty from what we do not know with certainty. The goal of Foucher's critical engagement with Cartesians was to demonstrate that they began with, but ultimately departed from, this Academic way of philosophizing: "[Descartes] wished to observe the First Law of the Academics, but because he did not observe the Third Law, he fell into obscurity and error after taking only two or three steps along the path of evident truth" (Foucher 1687: 111). All of the "Suppositions" and "Assertions" detailed in Foucher's (1675) critique of Malebranche are specific examples of Cartesian departures from the Third Law of Academic philosophy. Foucher's goal is not to undermine for destruction's sake; it is to call back the straying Cartesians to the correct path and to begin the search for truth anew: "it is necessary to bring Descartes back to the Academy, not to leave the Academy to join Descartes" (Foucher 1693: 113). Just as we should not consider Descartes a skeptic on account of the arguments of his First Meditation, so too we should not consider Foucher a skeptic on account of his skeptical critique of Descartes and other Cartesians. In fact, there is good reason to consider Foucher a Cartesian on account of his skeptical objections to Cartesians, since his methodological use of skepticism parallels that of Descartes.

There are at least four ways in which Foucher's Academic way of philosophizing is Cartesian, all of which Foucher himself recognized as Cartesian aspects of his philosophy: 1) "they [i.e. the Academics and Descartes] begin to philosophize by means of doubting things in general, and by the universal examination of our judgments"; 2) "[t]hey agree that we must consider the senses incapable of judging by themselves the truth of things outside of us"; and 3) "[t]hey agree in following approximately the same method of philosophizing" (Foucher 1693: 187–8). The fourth similarity between Foucher's Academics and the Cartesians is the most fundamental, and the one that upsets the skeptical, anti-Cartesian reading of Foucher more than anything else. Foucher spends roughly a quarter of his (1693) *Dissertations* defending Descartes's criterion of truth, which Foucher sometimes calls "le bon sens" and other times "*évidence*". This evidence has its origin in divine reason, and shines like a "torch in the fog" (Foucher 1693: 204–5). The goal of Academic philosophers is to discover evident truths and to teach the correct method for discovering them, for delving deeply into them, and for using them to discover further evident truths. Foucher is not short on examples of evident truths that have been discovered, the majority of which come from mathematics (Foucher 1693: 83–8).

However, Foucher also identifies a number of “dogmas” that distinguish his Academic philosophy from Cartesianism. The proof of these dogmas would have constituted the substance of the next volumes of Foucher’s “complete system of philosophy”, which likely would have included a Metaphysics and a Physics (see Foucher 1693: 197), had he lived to write them. These non-Cartesian dogmas are: 1) that the essence of matter does not consist in extension (what the essence of matter is, Foucher does not say); (p. 685) 2) that minds and bodies engage in reciprocal action on one another; 3) that there is no idea of “infinity in act”, there is only the idea of “infinity in power”; 4) a different means of proving the existence of God; 5) several (unnamed) doctrines in physics, despite the fact that the Academics agree with the Cartesians about the infinite divisibility of matter (Foucher 1693: 188). So Foucher was not a Cartesian in that he was committed to every doctrine of Descartes. However, Foucher’s non- and anti-Cartesian philosophical views are far from being all skeptical in spirit. Foucher had his own positive philosophical views.

4. Foucher’s Accidental Role in the Skeptical Attack on Descartes’s Criterion of Truth

If we consider Foucher’s works as a whole, rather than considering particular arguments taken out of context, then the label ‘skeptic’ does not fit Foucher. Foucher’s Academic works certainly employ skeptical arguments, but the same can be said of the works of many, if not most, philosophers, especially those who engaged in polemical battles with other philosophers. Skeptical arguments are powerful tools for revealing philosophical errors, for questioning an author’s certainty, for exercising the imagination and creativity, and for reminding us that there is still work to be done. They are not the possessions of skeptics alone. There are innumerable skeptical arguments in the Western philosophical canon, but very few genuine skeptics.

If Foucher is not a genuine skeptic, then what are we to make of the place usually assigned to him in the history of Cartesianism, and in the history of early modern philosophy generally? Again, focusing on Foucher’s works, we should consider him a philosopher inspired by and committed to Descartes’s method, but also a philosopher who felt that improvements could and should be made to the application of that method. Skepticism was the means used by Foucher to make the need for these improvements manifest. Foucher is a methodological Cartesian, but doctrinally he is an original philosopher whose complete system, if it had been finished, might have made a significant contribution to the development of modern philosophy and science.

However, labels like ‘skeptic’ are not only employed by historians of philosophy to describe single authors or their works in isolation from other authors’ works. Labels are also useful tools of the historian of philosophy to pick out trends, to mark periods, to highlight themes across authors, and to indicate important developments. To add to the “Foucher paradox”, therefore, I want to argue in this last section that despite leaving us with a corpus that is not itself a skeptical project, there is still a sense in which Foucher’s

works contributed to seventeenth-century anti-Cartesian French skepticism. Foucher, like Descartes on Popkin's view, turns out to be a skeptic *malgré lui*, but for different reasons.

(p. 686) One way to make this argument is on the basis of Watson's argument in *The Breakdown of Cartesian Metaphysics*. According to Watson, the decisive issues that led to the downfall of Cartesianism in the late seventeenth century were precisely the issues that Foucher targeted in his Academic writings: "The downfall of Cartesianism in the late seventeenth century has now been traced to the inability of Cartesians to solve two major problems deriving from conflicts among their metaphysical principles. They could give philosophically satisfactory explanations neither of how minds can know material objects, nor of how mind and matter can causally interact" (Watson 1987: 149). Foucher was not a skeptic, but his use of skeptical arguments brought down one of the most important philosophical systems in the history of Western thought. So from the point of view of the big-picture historian of philosophy who is interested in tracking the rise, development, and fall of great systems, Foucher's place in the story, whether he would like it or not, is that of the devastating skeptic. This is one sense in which Foucher is an "accidental skeptic": Foucher's skeptical writings are, from our point of view, far more historically important and interesting than his non-skeptical views, so from the historian's perspective Foucher is most usefully treated as a skeptic.

The above justification for ascribing the label 'skeptic' to Foucher hinges on Foucher having a very prominent role—one worth labeling—in the downfall of Cartesianism. However, Thomas Lennon denies that Foucher's role was that great: "a disadvantage of Watson's role for Foucher is that he [Foucher] just wasn't well enough known or widely enough read to have had the effect ascribed to him. Malebranche himself did not take Foucher seriously" (Lennon 2003: 119). Lennon suggests that it was not Foucher who brought about Descartes's decline, but Huet: "Foucher contributed to the downfall less by noting the internal inconsistency of Cartesian principles than by bringing Huet to believe that Cartesianism represented a threat to religion, and that the danger was Descartes' failure to adhere to his own (perfectly acceptable) principles" (Lennon 2003: 119). If Lennon is right, then despite the fact that Foucher inspired a clear skeptic, Huet, to attack Descartes, there is really no point in calling Foucher himself a skeptic. Huet, who knew Foucher well, seems to have been of this opinion: "[Foucher] hardly knew the names of Arcesilaus and Carneades, let alone anything about Pyrrhonism" (Letter to Nicaise, 19 April 1697; quoted from Rabbe 1867: Appendix X). Nevertheless, we might still call Foucher an "accidental skeptic" on account of his role in motivating skeptics to attack Descartes.

However, there is another, more interesting sense in which Foucher is an accidental skeptic, which makes sense of treating him, along with Bayle and Huet, as one of the "three skeptical musketeers" of late seventeenth-century French philosophy. Within the span of a decade, and seemingly without plan or collaboration, these three philosophers contributed to a crisis that went straight to the heart of Cartesian philosophy—not just its metaphysics, which is Watson's focus, but the core of its epistemology. Foucher, Huet, and Bayle cast serious doubt in very different ways on the Cartesian criterion of truth, which

the three of them took to be "*évidence*". However, whereas Huet and Bayle attacked the criterion intentionally and directly in their writings, Foucher undermined the criterion while trying to defend it!

(p. 687) The Latin 'evidentia', the French '*évidence*', and their cognates are not prominent terms in Descartes's writings, though they are present, and in crucial texts such as the first rule of the *Discourse*: "never to accept anything as true if I did not have evident knowledge of its truth [*ne recevoir jamais aucune chose pour vraie, que je ne la connusse évidemment être telle*]" (CSM I.120/AT VI.18). Descartes used a wide variety of concepts when engaging the issue of the criterion of truth: indubitability, clarity and distinctness, the natural light of reason, good sense. However, by the time Foucher, Huet, and Bayle began attacking Cartesianism at the end of the seventeenth century, '*évidence*' had become the catch-all term for the Cartesian criterion of truth. In his famous skeptical article in the *Dictionary*, "Pyrrhon", Bayle has his skeptical abbot pronounce: "You will rightly claim that *évidence* is the criterion [*caractere sûr*] of the truth; for if *évidence* is not this criterion, then nothing would be" (Bayle 1740: 732). After enumerating the many things that might pass as "the" Cartesian criterion of truth, Huet concludes that *évidence* is the essential feature of them all: "[Descartes] seems to take evidence to be something general that ought to be in everything we perceive that deserves to be regarded as true, whether it is perceived through the natural light, or through clear and distinct perception, or through reasoning, or through the senses, or in some other way" (Huet 2003 [1694]: 121).

The reason for the simplification of Descartes's criteria of truth into a single dominant criterion seems to be Malebranche, at the outset of whose *Recherche* we read: "truth is almost never found except with evidence, and evidence consists only in the clear and distinct perception of all the constituents and relations of the object necessary to support a well-found judgment" (Malebranche 1997 [1674]: 10). Discussions of criteria of truth in the period cannot be distinguished from discussions of the separation of faith and reason, and Malebranche, more than Descartes, made *évidence* the criterion of the philosopher as opposed to the theologian: "[w]e must be equally submissive to faith and evidence; but in matters of faith, evidence must not be sought before belief, just as in matters of nature, one must not stop at faith, that is, at the authority of philosophers. In a word, to be among the Faithful, it is necessary to believe blindly; but to be a philosopher, it is necessary to see with evidence" (Malebranche 1997 [1674]: 62). In the late seventeenth century, therefore, to attack *évidence* is to attack philosophy as an autonomous discipline vis-à-vis theology.

Bayle and Huet both attacked *évidence* and along with it both Cartesian philosophy and rational inquiry in general. Bayle's skeptical objections in the article "Pyrrhon" are well known. Through a dialogue between two Catholic abbots, Bayle demonstrates that a number of evident rational principles, such as the transitive property of equality, are contradicted by core Christian doctrines, such as the Trinity. To be rationally consistent and faithfully Christian, therefore, one must reject the evident principles as false. But if one does so, then the criterion of evidence loses its credibility (Bayle 1740: 732). This article

of the *Dictionary* is notoriously difficult to interpret; Bayle took great pains in his final debates with Rationalist theologians to point out that he, Bayle, is not a Catholic abbot, and a fortiori he is not the skeptical Catholic abbot of his writings. Nevertheless, Bayle, in those same debates with Jean Le Clerc (1657–1736) and Isaac (p. 688) Jaquelot (1647–1708), undermined *évidence* by arguing that we must acknowledge that there are many degrees of *évidence* and it is not possible to determine who, if anyone, possesses the highest degree (Bayle 2016 [1707]: 162–3). It follows from Bayle's reasoning that possession of *évidence* is not sufficient for declaring that one possesses the truth. Bayle asserted throughout his career that recognizing *évidence* is a necessary condition for possessing the truth, but without the sufficiency condition met, *évidence* is not the unique and powerful criterion it was thought to be in late seventeenth-century French thought.

Huet attacked both the necessity and sufficiency of *évidence* for guaranteeing us that we possess the truth. Like a traditional Pyrrhonian skeptic, Huet employs a battery of arguments drawing upon the various tropes outlined by Sextus Empiricus (160–210). He delights above all, as skeptics usually do, in documenting disputes among his rivals. The trope of interminable disagreement, the first mode of Agrippa, is turned by Huet against the Cartesians and their criterion of truth: "The Cartesians also disagree among themselves and, using the same standard of truth, maintain opposite and contradictory views" (Huet 2003 [1694]: 127). For Huet, *évidence* is no more authoritative than a rumble in the gut for determining what is true and what is not. In fact, like stomach troubles, the appearance of *évidence* can be accounted for physiologically, by appealing to brain impulses and the flow of animal spirits (Huet 1723: 49–50).

In the eighteenth century, Jean-Pierre de Crousaz (1663–1750) took these recent skeptical attacks by Bayle and Huet against *évidence* to constitute a philosophical crisis in urgent need of a response (Crousaz 1733). Crousaz does not mention Foucher as adding anything to the problem, but a strong case can be made that he did. Whereas Bayle attacked the sufficiency of *évidence*, and whereas Huet attacked both the necessity and the sufficiency of *évidence* for guaranteeing the truth, Foucher defended both the necessity and sufficiency of *évidence*. However, after hundreds of pages of Foucher's Academic writings, readers are left wondering what, if anything, could ever be an evident proposition beyond the basic axioms of geometry. Foucher defended *évidence* in principle, but the effect of his writings is to cast serious doubt on the *scope* of *évidence*. If a philosopher marches by the light of *évidence* alone, which is the first rule of the Academics, will she ever manage to be anything more than a geometer? Can Cartesians, who follow this method, ever achieve anything outside of pure mathematics? None of Foucher's writings suggests a positive response to this question.

Foucher was deeply aware of the limitations of scope and the turtle's pace of his, and the Cartesians', philosophical method. In his last apology on behalf of the Academic method, Foucher explains that philosophy, especially in his day, *must be* slow to proceed: "It is not time to build, it is still necessary to dig to support the foundation; for we are still today in the same state of ignorance that they were in during the time of the Academics" (Foucher 1693: 79). Given the ignorance of his time, the proper pursuit of the philosopher was to

study first principles. Aware that his readers might tire of reading endlessly about first principles, Foucher gives an apology for these too, arguing that it is by means of careful attention to the foundations that we are able to, literally, reach the stars: “We easily conceive that if two triangles have two sides equal to two sides and one (p. 689) angle equal to one angle, then they are congruent; yet many men despise this truth as if it possessed little importance. Nevertheless, it is by this means that we have discovered the art of measuring inaccessible places, of determining the sizes of the stars, and of judging their distance from the earth” (Foucher 1693: 85).

By means of the passage just quoted Foucher tries to establish the “esteem that we owe to evident truths” (Foucher 1693: 83), which are the truths that Foucher’s Academic method aims to uncover. This esteem is based, apparently, in the potential of evident truths, like those of basic geometry, to bear fruit in the empirical sciences. Here lies the irony. Foucher’s skeptical arguments against the Cartesians, outlined above, leave the reader wondering how, if at all, it is possible to arrive at knowledge of the real existence of extended objects outside of the mind. None of Foucher’s positive writings give us any reason to believe that “inaccessible places” and “stars” are anything more than ideas in the mind. What meaning, therefore, is there to the notion of the “distance of the stars from the earth”? If this distance is just a relation that joins together two mere ideas, star and earth, then most of Foucher’s readers will have little esteem for his evident truths, which fail to get us outside of our minds into the real world.

Bayle and Huet were sworn enemies of *évidence* and did what they could to undermine it. But there is a sense in which Foucher, allegedly the friend of *évidence*, did the most harm to this central Cartesian notion. If the friends of *évidence*, like Foucher, find themselves trapped in their own minds when they follow this criterion, then there is hardly any need for the enemies of *évidence* to wage their battle! Since Foucher’s writings serve in this way to undermine *évidence*, and thereby aid Bayle’s and Huet’s attacks on the criterion, there is solid reason to count Foucher a part of this skeptical crisis. But perhaps, if Foucher had lived a decade or so longer, he would have completed his system of philosophy and shown us how to recover the real existence of the mind-independent world by following the light of *évidence*. This possibility should lead us to count Foucher, once again, merely as an “accidental skeptic”.

References

Baillet, Adrien (1691), *La Vie de Monsieur Descartes*, deuxieme partie. Paris: Daniel Horthemels.

Bayle, Pierre (2016 [1707]), *Dialogues of Maximus and Themistius*, trans., ed., and introduced by Michael W. Hickson. Brill’s Texts and Sources in Intellectual History 18. Leiden: Brill.

Bayle, Pierre (1740), *Dictionaire historique et critique, par M. Pierre Bayle*, 5th edition, 4 vols. Amsterdam: P. Brunel et al.

Charles, Sébastien (2013), “Entre réhabilitation du scepticisme et critique du cartésianisme: Foucher lecteur du scepticisme académique”, *La réception des Academiques à l’Âge moderne*, special issue of *Astérion* 11 [online]. Available at: **http://asterion.revues.org/2382** [accessed 4 July 2014].

Crousaz, Jean-Pierre de (1733), *Examen du pyrrhonisme ancien et moderne*. La Haye: Pierre de Hondt.

Foucher, Simon (1673), *Dissertations sur la recherche de la verité, ou sur la logique des academiciens*. Dijon: publisher unknown.

(p. 690) Foucher, Simon (1675), *Critique de la Recherche de la verité où l’on examine en même-tems une partie des Principes de Mr Descartes: Lettre par un Academicien*. Paris: Martin Coustelier.

Foucher, Simon (1687), *Dissertation sur la recherche de la verité, contenant l’apologie des academiciens, où l’on fait voir que leur manière de philosopher est la plus utile pour la religion, et la plus conforme au bon sens, pour servir de Réponse à la Critique de la Critique, etc., avec plusieurs remarques sur les erreurs des sens et sur l’origine de la philosophie de Monsieur Descartes*. Paris: Estienne Michallet.

Foucher, Simon (1693), *Dissertations sur la recherche de la verité, contenant l’histoire et les principes de la philosophie des academiciens: Avec plusieurs réflexions sur les sentimens de M. Descartes*. Paris: Jean Anisson.

Gouhier, Henri (1927), “La première polémique de Malebranche”, *Revue d’histoire de la philosophie* 1: 25–48.

Hickson, Michael W. (2018), “Varieties of Modern Academic Skepticism: Pierre-Daniel Huet and Simon Foucher”, in Diego Machuca and Baron Reed (eds.), *Skepticism: From Antiquity to the Present*. London: Bloomsbury, 320–41.

Huet, Pierre-Daniel (1723), *Traité philosophique de la faiblesse de l’esprit humain*. Amsterdam: Henri Sauzet.

Huet, Pierre-Daniel (2003 [1694]), *Against Cartesian Philosophy*, ed., trans., annotated, and introduced by T. M. Lennon. Amherst, NY: Humanity Books.

Lennon, Thomas M. (2003), “Foucher, Huet, and the Downfall of Cartesianism”, in T. M. Lennon (ed.), *Cartesian Views: Papers Presented to Richard A. Watson*. Leiden: Brill, 117–28.

Maia Neto, José R. (1997), “Academic Skepticism in Early Modern Philosophy”, *Journal of the History of Ideas* 58: 199–220.

Maia Neto, José R. (2003), “Foucher’s Academic Cartesianism”, in T. M. Lennon (ed.), *Cartesian Views: Papers Presented to Richard A. Watson*. Leiden: Brill, 71–95.

Malebranche, Nicolas (1997 [1674]), *The Search after Truth*, trans. and ed. T. Lennon and P. Olscamp. Cambridge: Cambridge University Press.

Pelletier, Arnaud (2013), “Leibniz’s Anti-Scepticism”, in Sébastien Charles and Plinio J. Smith (eds.), *Scepticism in the Eighteenth Century: Enlightenment, Lumières, Aufklarüng*. Dordrecht: Springer, 45–62.

Popkin, Richard H. (2003), *The History of Scepticism: From Savonarola to Bayle*. Oxford: Oxford University Press.

Rabbe, Felix (1867), *Étude Philosophique: L’Abbé Simon Foucher Chanoine de la Sainte Chapelle de Dijon*. Paris: Didier et Cie.

Watson, Richard A. (1966), *The Downfall of Cartesianism, 1673–1712: A Study of Epistemological Issues in Late 17th Century Cartesianism*. The Hague: Martinus Nijhoff.

Watson, Richard A. (1969), “Introduction”, in Simon Foucher, *Critique de la Recherche de la verité*. New York and London: Johnson Reprint Corporation, v–xlix.

Watson, Richard A. (1987), *The Breakdown of Cartesian Metaphysics*. Indianapolis and Cambridge: Hackett.

Watson, Richard A., and Marjorie Grene (1995), *Malebranche’s First and Last Critics: Simon Foucher and Dortous de Mairan*. Carbondale and Edwardsville: Southern Illinois University Press.

Michael W. Hickson

Trent University

Locke on Cartesian Bodies and Cartesian Souls

Philippe Hamou

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The anti-Cartesian agenda of the *Essay Concerning Human Understanding* is better understood when Locke's intellectual debt to Descartes is fully recognized. Many theoretical options of the *Essay*, including the most explicitly anti-Cartesian ones, would not have been possible without Descartes, and without the tacit adoption of a number of Cartesian premises, freely incorporated into Locke's philosophical insight. This subtle intertwining of Cartesian and anti-Cartesian elements is illustrated here on two topical metaphysical issues: the distinction between space and body, and the question of whether we have access to the essence of the soul through "self-consciousness".

Keywords: John Locke, body, soul, cogito, consciousness, dualism, extension, hardness

(p. 691) 1. Introduction

LOCKE never made a mystery of Descartes's role in awakening his interest in philosophy. As he once told Lady Masham, Descartes's writings were the first to give him "a relish of Philosophical Studys".[1] Similarly, in his controversy with Stillingfleet, he acknowledged a "great obligation" to Descartes in that he owed him his "first deliverance from the unintelligible way of talking of the philosophy in use in the Schools".[2] Locke was not merely paying lip service to his predecessor. Perhaps more than any other in the century, he developed and transmitted Descartes's legacy of a philosophy written in plain language, addressed to the common reader, and deliberately avoiding scholastic jargon. More importantly, he adopted in the *Essay Concerning Human Understanding*[3] Descartes's decision to treat philosophical questions from a first-person perspective. As truth is firstly encountered as subjective certainty, all philosophical questions are to be treated, not through dialectical considerations of the best available opinions, nor through deductions from general principles or maxims, but as they appear to a singular subjective experience, to an unprejudiced mind, dealing with how things *look* to that mind, how they appear to be—or what they are *in its ideas*.

In line with this "cognitive individualism" (Jolley 1999: 8), it should be noted that Locke acknowledged his debt to the Cartesian *style*, only to say that his positive philosophy (p. 692) owed nothing to the Cartesian one, that it was all his own. After the publication of the *Essay*, Locke had been taken to task for being himself a Cartesian, or as John Sergeant (1984 [1697]) dubbed him, a fanciful "Ideist", pursuing Descartes's project of reducing all certainty to the certainty of *ideas*, and in so doing pushing philosophy into the arms of the skeptics. He sternly refused such assimilation, telling Stillingfleet that even his errors and imperfections were all his own: "I must own to your lordship they were spun barely out of my own thoughts, reflecting as well as I could on my own mind" (Locke 1964 [1823]: IV.48–9).

Not only did Locke refuse to be considered as a Cartesian, but there are good reasons to think that an "anti-Cartesian agenda" was at the very core of Locke's *Essay*.[4] On many doctrinal philosophical points, Locke held specifically anti-Cartesian theses. He did not think that we have innate ideas or principles, that "the soul always thinks" (*E* II.1), that we have a positive idea of infinity (*E* II.17), or that we could have an idea of a "chiliaëdron" that is not an image (*E* II.29.13–14); he denied that we have the resources to intellectually grasp the real essences of substances (*E* II.23, III.6); he denied that our idea of body and our idea of extension are one and the same (*E* II.13); far from considering it an intuitive truth, he denied the very intelligibility of the "freedom of the will" (*E* II.21). On even more numerous other points, Locke expressed serious doubts about well-known Cartesian doctrines. He was reluctant to give much weight to the ontological proof of God's existence.[5] He had trouble with the certainty of the so-called "dualistic" account of matter and spirit, even suggesting in the *Essay* (IV.3, 6) that the soul might be material. He remained entirely unconvinced by the doctrine of beast-machines,[6] etc.

These anti-Cartesian elements are so conspicuous that it is tempting to give credit to a centuries-old representation of the two authors as personifications of the major antinomies of early modern philosophy, the enduring battle of Gods and Giants, rationalism and empiricism, nativism and empiricism, free will and determinism, etc. Voltaire's (1733) Letter on Mr Locke was perhaps the earliest and most influential expression of the antithesis between, on the one hand, "moderns" such as Descartes and Malebranche who still belonged to the "multitude of reasoners" writing "the romance of the soul" and, on the other hand, the wise and modest Locke who, as an "excellent anatomist", was the first to write its "history".

Locke himself seems to have been largely responsible for the invention of this antagonistic view, often presenting his tenets and the Cartesian ones in ways that made them look more irreconcilable than they really were. As Pierre Coste remarked in the footnotes to his French translation of the *Essay*,[7] whenever Descartes came to the fore, Locke's (p. 693) judgment, usually sound and measured, appeared somewhat twisted, often verging on caricature—as, for example, when Locke identifies the Cartesian dualistic account of mind and body with a quasi-Platonistic account of soul–body dissociation, drawing on thought experiments of soul transmigrations between animal-machine bodies, in order to show the seemingly appalling consequences of Descartes's doctrine of pure thought.[8] At a

time when Descartes's persona and Descartes's thought still had a very strong hold on European minds, it can appear as if Locke (who was surely not immune to a certain nationalistic prejudice against the "French Philosophers"[9]) was taking it upon himself to provide the tools for dismantling the Cartesian statue, as well as French philosophical pre-eminence.

Even though Locke himself appears willing to plead for it, the common antithetical reading of the relationship between the two authors must be taken with caution. Nationalistic prejudices and caricatures aside, Locke's relationship to Cartesian philosophy seems to be far more complex. The view of a "Cartesian Locke" is still alive among modern readers and commentators. According to one popular interpretation, Locke and Descartes together form the spearhead in "the epistemological turn" of early modern philosophy, developing a new "logic of ideas" (see Schouls 1974–5, 1980; Schuurman 2004) founded on the idea that true knowledge is an intellectual perception, a "clear and distinct idea", warranted by subjective certainty. Quite strikingly, Locke makes use of the distinction between intuitive and demonstrative knowledge in the first chapters of Book IV in ways that are strongly reminiscent of the *intuitus/deductio* distinction of Descartes's *Regulae*. In the chapter devoted to Locke and Descartes in his seminal *Locke's Theory of Knowledge*, James Gibson suggested that it is not impossible that, directly or indirectly, Locke came upon a copy of the *Regulae*, "during [his] prolonged residence on the Continent, with its opportunities for intercourse with members of the Cartesian school" (Gibson 1917: 206–7). According to Gibson, Descartes and Locke set out for the same aim: determining the nature of human knowledge and how far it extends. He quotes a striking passage from the *Regulae*, which "seems almost verbally to anticipate" Locke's critical questioning of the bounds of knowledge:

> Now there does not arise here any problem the solution of which is of greater importance than that of determining the nature of human knowledge and how far it extends … This is a question which one must face once in one's life, if one has ever so slight a love of truth, since it embraces the whole of method, and as it were the true instruments of knowledge. Nothing seems to me to be more absurd than to discuss with boldness the mysteries of nature, the influence of the stars, and the secrets of the future, without having once asked whether the human mind is competent to such enquiries.[10]

(p. 694) According to Gibson, in pursuing this aim, Descartes was led astray by an over-optimistic confidence in the power of pure thought to disclose metaphysical truths, whereas Locke's more sober approach avoided metaphysical conundrums in being clearer about what exactly should be an object of intuition. Whereas Descartes was carelessly including among objects of intuition simple natures, notions, propositions, and conceptions, Locke understood intuitive knowledge as strictly concerned with "mental propositions", grasping the necessary connections between the contents of our ideas but not the real essences of actual beings. So, on this reading, Locke was the author that put Descartes's project on the right tracks, but in ways that clearly show how much he was indebted to it: "without the influence of the Cartesian view of knowledge and the Cartesian conception

of self-consciousness, it is not too much to say that the *Essay* as we know it, would never have been written" (Gibson 1917: 207).

One lesson can be drawn from these conflicting approaches to Locke's relation to Descartes: the anti-Cartesian agenda of the *Essay* is better understood when Locke's intellectual debt to Descartes is fully recognized. Many theoretical options of the *Essay*, including the most explicitly anti-Cartesian ones, would not have been possible without Descartes, and without the tacit adoption of a number of Cartesian premises, freely incorporated into Locke's philosophical insight. In the following sections of this chapter, I shall try to exhibit this subtle intertwining of Cartesian and anti-Cartesian elements, focusing on two metaphysical issues: the distinction between space and body, and the question of whether we have any access to the essence of the soul through "self-consciousness".

2. Space and Bodies

The issue of space and bodies was among the ones on which Locke's confrontation with Descartes was the most explicit and systematic. Briefly sketched out in the early drafts of the *Essay*, the topic is the main focus of a set of manuscript notes from 1677–8 that Locke made in his journal when he was in France.[11] Locke returned to the topic, with a somewhat different perspective, in the *Essay*—published in 1689—chapter II.13 (on "simple modes of space"). These texts reveal many facets of Locke's disagreement with Descartes, both metaphysical and methodological—but they also show that Locke's engagement with Descartes's ontology of body is deeper than is usually thought, and his objections based on non-trivial shared points of agreement.[12]

Although it is quite clear that Locke's positions were informed by natural philosophical debates that were raging at that time for or against the existence of the void, Locke chose not to enter the battle at the level of physical or experimental enquiry. From the (p. 695) outset, that is in the drafts and manuscript notes, the issue is placed, *just as it was in Descartes*, on metaphysical and epistemological ground—Locke's argument being concerned with the conceivability of the void (what he sometimes calls the "pure no-thing") rather than its actual existence in the corporeal world.

Let us state here, in a condensed form, Descartes's arguments against empty space and for the identification of body with extension. First, there is the principle that "nothingness cannot have any properties".[13] But a space, even an imaginary one of the kind the scholastic philosophers envision beyond the bounds of the created world, *does* have geometrical features. It has parts with determinate sizes and shapes. Consequently, space, or extension, is not nothing. It has to be a real thing—and, as this thing exists without anything created to support it, it has to be attributed to a substance.[14] Besides, whenever one considers the various parts of this extended substance, one has to consider them as impenetrable because any two bits of extension cannot overlap or penetrate one into the other.[15] For Descartes, this is no *petitio principii*, but a direct consequence of the very content of our idea of space or extension: reciprocal exteriority of parts ("*partes extra partes*") means that each part of space occupies its place in an exclusive way—it cannot

enter or penetrate another. So it turns out that this extended substance, whose parts are in essence impenetrable one to the other, cannot be anything else than matter itself, the stuff out of which all bodies are made. Impenetrable extension and whatever directly results from it (divisibility, quantity, circular motion) suffice to explain all the other properties of bodies (such as weight, hardness, color), properties that are either purely relational, resulting from how bodies interact through motion, or illusory and extrinsic, resulting from the actions of the bodies on our sensory faculties.

Although it may seem, on a superficial reading of the *Essay*, that Locke's main point against this metaphysical deduction is simply that our idea of body includes more than mere extension, namely *solidity*, and thus represents to us something different from space, Locke's anti-Cartesian argument was actually much more complex. It shows that Locke engaged with the deeper aspects of the Cartesian doctrine, namely the ones Descartes set forth in his correspondence with Henry More,[16] where he explicitly stated that "impenetrability" or solidity is indeed an intrinsic property of extension. The issue then is not whether solidity is a "primary" or essential quality of bodies. Both authors (p. 696) granted that, and indeed both made a point of distinguishing *solidity* or *impenetrability* from the secondary, tactile, quality of *hardness*.[17] Locke's point against Descartes, rather, is that solidity is *essentially distinct* from extension. It is not, as Descartes explained once, a property that could be deduced from extension, just as risibility is deduced from rationality.[18] It is an utterly distinct and *sui generis* property, one that adds something to our idea of extension and makes space and body two very different sorts of things.

The manuscript notes from the journal sustain this claim with highly interesting arguments. Descartes's first metaphysical premise seems to be granted: nothingness has no properties. As suggested in the annihilation thought experiment that opens Locke's notes,[19] when we try to imagine space entirely emptied of bodies, we come to think of something that has no properties at all, the pure *darkness* of nothingness. The minor premise, however, the idea that actual space, contrary to this imaginary pure nothingness, is endowed with actual properties, is not something that Locke would be ready to grant. Locke's annihilation hypothesis is not without affinity with the doubt about the existence of bodies in which Descartes is still immersed at the beginning of the Fifth Meditation. If I began by denying the existence of all bodies, as Descartes and Locke both do in different ways, can I still have an idea of something, an entity like a Cartesian space, endowed with dimensions, magnitudes, parts? For Locke the answer is clearly negative. In the absence of bodies, space is nothing more than a mere possibility of existence, a mere "existibility" (Aaron and Gibb 1937: 105): it has neither parts, nor extension, nor measure. These dimensional and *mereological* properties are wrongly attributed to space by superimposing on it the mental image that we have of a bodily extension, of a being having external moveable and separable parts, an image that no intellectual intuition but only the previous *sensation* of actual bodies can provide. We can therefore legitimately say that pure space, space without body, is *nothing* and has no properties at all.

It may seem paradoxically that this first result brings Locke closer to Descartes than one would expect. If space emptied of all body is nothing, or nothing but a being of reason, does this not mean that the existence of body is essential to the being of space, that the reality of space depends essentially on the reality of the body? Both Locke and Descartes would say so. But it is precisely in the analysis of this relation of dependence that Locke departs from Descartes and sees the semantic source of the Cartesian error.

(p. 697) The kind of dependency that weaves together space and body is not the inherence relation that obtains between an attribute (or a mode) and a substance. It is the dependence of a relational term with respect to the existence of the beings that are related. So when we say that extension or distance cannot exist without bodies, it is just as when we say that there is no paternity without men. In both cases we do not refer to an intrinsic property of bodies or of men, but to the exclusive capacity of a given type of beings to enter into a given type of relation. So if extension is proper to bodies as such, it is only because bodies are, as far as we know, the only beings that possess distinct parts, exterior one to the other, and so "spatially" related one to the other. Even when it is applied to body, space is a relation, not really the attribute of a substance. In short, we should say something like this: a body is a "cohesion of solid parts",[20] and consequently a body is something that is spatially extended. Far from being derived from it, solidity is conceptually prior to extension because only solid things have parts that could be spatially related. Extension, the spatial continuum occupied by bodies, is not what comes first in the definition of the body; rather, it somehow results from the aggregation of the parts (or maybe the atoms) that all bodies are actually constituted of.

In the *Essay*, the debate with Descartes is set on new grounds. It seems now, conformable to the official project of the *Essay*, that Locke is exclusively concerned with *how we came to our ideas* of body and space, and whether these names could signify the same idea. Locke begins (*E* II.13.11) by noting that those "that would persuade us, that Body and Extension are the same thing" either "change the signification of words" (something that one would not suspect them of, "they having so severely condemned the philosophy of others, because it hath been too much placed in the uncertain meaning, or deceitful obscurity of doubtful or insignificant terms") or "confound very different ideas one with another". He also explains (*E* II.13.23) that the mere fact that men dispute whether or not there is a void in nature is a sufficient proof that everyone has a sufficiently determined idea of it, that is an idea of space distinct from their idea of body.[21]

It should be noted that a Cartesian would have ready answers to this kind of objection. Descartes himself acknowledges in *Principles* II.10–11 (AT VIIIA.45/CSM I.227) that we do have an abstract idea of "empty space", distinct from the idea of body. Defining "internal place", he invites his reader to consider the boundary separating a body from its bodily neighborhood, without considering either the contained body or the container. In this way, through this partial consideration, it is possible to conceive that a body comes to occupy the "space" of another body—taking its place within its limits. The two ideas differ, just as a particular extension differs from a "generic" one.

So, it seems that the argument taken from the mere consideration of our ideas and their nominal content is insufficient to substantiate Locke's anti-Cartesian claims. This may explain why Locke insensibly shifted from mere epistemology to metaphysical (p. 698) considerations. Even if we are to define space as "*partes extra partes*" as Descartes did (a rather obscure and circular definition according to Locke in *E* II.13.15), these "parts" of space cannot be moved or separated, neither really nor even mentally. So it makes no sense to say that space is divisible, and even less to say that its parts are mutually impenetrable. This makes a stark contrast with bodies, which are truly divisible:

> The parts of pure space are immovable, which follows from their inseparability; motion being nothing but change of distance between any two things; but this cannot be between parts that are inseparable, which, therefore, must needs be at perpetual rest one amongst another. Thus the determined idea of simple space distinguishes it plainly and sufficiently from body; since its parts are inseparable, immovable, and without resistance to the motion of body. (*E* II.13.15)

Locke then considered the Cartesian "objection" that if empty space is not a being of reason, but something real, it must be either a substance or an accident of a substance—and so by necessity it must be *body* itself or something inherent to body, as no other option remains: the only other substances in this world being unextended spirits. Locke answered with this famous agnostic stance:

> If it be demanded (as usually it is) whether this space, void of body, be substance or accident, I shall readily answer I know not; nor shall be ashamed to own my ignorance, till they that ask show me a clear distinct idea of substance. (*E* II.13.17)

Then comes the famous *morceau de bravoure* on the vacuity of our general idea of substance (*E* II.13.18): the term 'substance', standing for the most abstract idea, adds almost nothing to our understanding of things, and, in its Cartesian acceptation, it is highly ambiguous. If one were ready to swallow the doctrine that all substance is one and the same (as it is in Spinoza), then the word substance would at least stand for a more determinate idea; but if we are, with the Cartesians, to admit that the word is intrinsically equivocal and applies to different kinds of beings (God and the two sorts of finite creatures), why not a fourth or a fifth kind? And why not an infinite, non-solid, and non-thinking extended stuff, permeating everything and existing everywhere?

3. Consciousness and the Essence of the Soul

One shared feature of Locke's and Descartes's approaches to the question of the mind is their common commitment to the thesis according to which "consciousness" is inseparable from the very experience of thinking, or, as Locke put it, "essential to it" (*E* II.27.9). Locke said repeatedly that we cannot think, "have ideas", without being conscious of them, that is, without conceiving at the same time, being firmly convinced that these (p. 699) thoughts and/or ideas are ours. Locke's terms may be compared with important passages from Descartes, such as this one from the answers to Arnauld's Fourth set of

Objections: “we cannot have any thought of which we are not aware at the very moment when it is in us [*nec ulla potest in nobis cogitatio, cujus eodem illo momento, quo in nobis esse conscii non simus*]”.[22] Descartes no more than Locke considers that thinking and consciousness are the same thing[23]—rather, he considers that consciousness is how we come to know our thoughts: while we are thinking such or such objects, we are conscious of our thoughts. In the Second Replies he writes: “Thought [*cogitationis*]: I use this term to include everything that is within us in such a way that we are immediately aware [*immediate conscii*] of it” (AT VII.160/CSM II.113). These formulations are strikingly similar to Locke’s.

Despite these similarities, Étienne Balibar (1998) has recently argued that Locke “invented” a modern idea of consciousness, precisely in contrast to Descartes’s uses of ‘conscientia’. To him, consciousness, in the “Lockean” modern sense, is an introspective activity, employed to explore the mental scene, the contents of the mind, and its various operations. Such a psychological program, he argues, was never intended by Descartes, whose *conscientia* accompanies all thought simply because it expresses the “self-presence of thought [*la présence à soi de la pensée*]”, which “does not depend on the exercise of any faculty”.

This presentation of Locke’s position, however, is debatable, as Balibar seems to consider consciousness and reflection as almost interchangeable terms. Lockean consciousness is construed here as an “internal sense” through which the mind acknowledges its own faculties, operations, and ideas. The quasi-synonymy between reflection and consciousness may be nowadays more or less implicit in a widespread notion of consciousness as a scanning faculty through which we get “access” to certain inner states of our minds, but I do not think it is right to assign it to Locke. Reflection is described in the *Essay* either as a receptive faculty that gives ideas of our own mental operations, or as an introspective attention that can be oriented willingly on such or such parts of our minds.[24] Consciousness, by contrast, is never presented as a potential source of “new” ideas. It is not a receptive faculty, but neither is it a voluntary action of the mind that we could choose to exert or not. One could say that it is not a faculty at all, and indeed it is never included in the various inventories of our mental faculties that one could find in chapter II.1, or II.11. It is more properly described as a constitutive and common feature of all thoughts and mental operations whatsoever, a first-order phenomenon, a “built-in”, self-representational character of our thoughts.[25] Our thoughts *present* themselves to us, in the very act of representing their object. Their being conscious is the way (p. 700) our thoughts *feel* to us, and this is why it is an inner and immediate characteristic of the thoughts themselves, “essential” to them in this sense.

Thus, contrary to Balibar, I do think that Locke was a rather faithful Cartesian on the topic of consciousness. His acceptation of the term in the *Essay* was not fundamentally different from the one that became usual among the French Cartesians such as Arnauld or La Forge, authors whom Locke read when he was in France, and who both explicitly distin-

guished between consciousness and reflection. La Forge, in particular, offered what is perhaps the clearest account of the distinction:

> I think I can define the nature of thought as that consciousness, awareness and inner feeling by which the mind is aware of everything it does or suffers, and in general, of everything which takes place immediately in itself at the same time as it acts or is acted on. I say "immediately" to let you know that this testimony and inner feeling is not something different from the action or passion and that the actions and passions themselves make the mind aware of what is taking place in itself. Thus you will not confuse this inner feeling with the reflection that we sometimes make on our actions, which is not found in all our thoughts because it is only one type of thought.[26]

In the very brief chapter of Book IV devoted to "our knowledge of existence", Locke put to use his "Cartesian" concept of consciousness, in order to show that we have an intuitive knowledge of our own existence:

> nothing can be more evident to us than our own existence. I think, I reason, I feel pleasure and pain: can any of these be more evident to me than my own existence? If I doubt of all other things, that very doubt makes me perceive my own existence, and will not suffer me to doubt of that. For if I know I feel pain, it is evident I have as certain perception of my own existence, as of the existence of the pain I feel. (*E* IV.9.2)

Locke's point here seems to be this: our own existence is as certain as the very existence of any one of our thoughts in our minds, because an awareness of ourselves, or "self-consciousness",[27] is attached to any one of them. This may be considered as the Lockean version of the Cartesian *cogito*.[28]

The text belongs to a sequence of chapters of Book IV (chapters 9 to 11) in which Locke proposes what might be referred to as his own "Cartesian" metaphysical itinerary, (p. 701) proving successively our existence, that of God (drawn from the existence of our mind), and that of finite things outside us. It is clear however that this Lockean itinerary presents from the very start striking differences from Descartes's original. Whereas Descartes considered the "*sum, existo*" of the Second Meditation as the very first truth and the paradigm of clear and distinct truths, the Lockean truth of my own existence is only one among many other intuitive truths, such as the truth that our idea of white is distinct from our idea of black, or the intuition of simple mathematical truths, such as "Three are equal to One and Two" (*E* IV.2.1).

Another difference is the role of universal doubt. In Descartes, although any individual act of thought is able to convey the truth of my own existence, the *cogito* of the *Meditations* owes a special quality to the fact that it is drawn from one specific (and somewhat monstrous) thought: the thought that everything that I used to hold true is false, even the opinion that I have a body, at present writing and sitting beside the fire, or the opinion that 3 and 2 added together are 5. With such a thought in the mind, there remains only

one undeniable fact: that I am thinking such a thought. This, if we are to follow Descartes, gives to the actual *cogito* of the *Meditations* an epistemic superiority over any other way to prove my own existence.

Admittedly, Locke paid tribute to the famous argument of the first two Meditations when he wrote: “If I doubt of all other Things, that very doubt makes me perceive my own Existence and will not suffer me to doubt of that” (*E* IV.9.2). Here, however, universal doubt is only an illustration of a point that could be made, perhaps more directly, with any other ideas or conscious experiences. Among them, Locke’s privileged experience—the one that makes us most clearly see that we cannot doubt of ourselves—was not of doubt but of pain. This can be seen for example in the rather prosaic rephrasing of the argument in the next chapter:

> If any one pretends to be so skeptical as to deny his own existence (for really to doubt of it, is manifestly impossible) let him for me enjoy his beloved Happiness of being nothing, until Hunger, or some other Pain, convince him of the contrary. (*E* IV.10.2)

Now, it is crucial to see that for Descartes, the *cogito*, because it follows universal doubt, offers a specific kind of information about this sort of thing that “I” am, a kind of information that cannot be gained otherwise. This knowledge is not only that I am a thinking thing. It is rather about how I (my “self”) stand in regards to this quality of being a thinking thing. As I am still actively denying the existence of everything else, I can see now clearly and distinctly that thinking cannot be something that is attributed to my being on top of other attributes or properties. All other possible attributes have been wiped out. So a thinking thing is, at this stage, precisely or uniquely what I am. I do not need to suppose that I have a body, or that I am an extended being, in order to see that I am something, a subsisting, substantial thing. Actual thinking is enough. As thinking is sufficient to make us see the mind as a substance, and as thinking does not presuppose any other attribute in order to be distinctly perceived, it can be said that (p. 702) thinking is the principal attribute of the thinking substance. In other terms, it is its essence. As Marleen Rozemond (1995: 40, n. 35) writes, in a neat formula that encapsulates both points: “the substantive contribution that the second meditation makes is then not just the (clear and distinct) idea that mind is a thinking substance, but the idea that it is sufficient for it being a substance that it thinks”.

This very idea was foreign to Locke. Locke certainly would have sided with Gassendi (1962 [1644]) or Leibniz (1989 [1692]) when they suggested that there was a sophism or fallacy of some sort in the whole argument of the first two Meditations—and that it was simply not possible that hyperbolic doubt (an artificial procedure) could substantiate such a strong ontological assertion as the one stating that thinking cannot be a mode of an extended substance. At any rate, Locke’s agnosticism on the nature of substances was not moved by Descartes’s argument: we do not, and cannot by any means, know what is sufficient for making a substance what it is. ‘Substance’ is a word for an idea which in itself,

and by its own nature, confuses all boundaries between things. Awareness of oneself, however obtained, cannot help change this state of affairs.

So, in the Lockean version of the *cogito*, the knowledge of our own existence is a purely existential truth. It puts ourselves into the realm of things, but that is all it accomplishes. Consciousness does not show us what sort of thing we are.

This important result of Book IV had been anticipated in an important digression of the first chapter of Book II, where Locke famously denies, against Descartes's contention, that the soul always thinks. This was perhaps one of the most explicitly anti-Cartesian passages of the *Essay*. Locke, following Gassendi in the Fifth Objections, takes issue with this seemingly absurd consequence of the Second Meditation:[29] if thinking, actual thinking, is indeed the very essence of the soul, then the soul never slumbers nor sleeps; by nature it always thinks. Locke's argument against this consequence is well known (if not always easy to understand[30]) and I shall not rehearse it here in all its details. It seems to follow two partly contradictory strategies. On the one hand, the argument is directed against Descartes's supposed dogmatism: the question of whether my soul always thinks being a purely factual, empirical one, and also a private one, it cannot be decided a priori, on the basis of a dogmatic definition of the soul made by someone else. This, at least, should be true for anyone who, like Locke and Descartes, accepts the idea that consciousness is inseparable from thought, and that first-person (conscious) experience is the only gauge for judging whether something is, or is not, a thought. Souls may very well not do any thinking, for example during sound sleep—Locke humorously suspects that this might be the case for his own "dull" soul. But—and here we have the thrust of the argument—as no one can experience his own soul when it is not thinking, the (p. 703) question appears eventually to be unanswerable through inner first-person experience, and so we should be content here with strict agnosticism.

However, there is a second line of argument, in which Locke seems less prone to agnosticism, and where he strongly suggests that the Cartesian view is not only dogmatic but very likely false, in that it leads to a representation of thought, moral persons, and human beings which is unpalatable. The argument here is quite clearly a doxastic one: even if we cannot demonstrate that the soul thinks intermittently rather than always, the former opinion appears to be more attuned to our moral, religious, and anthropological needs, and so it should be preferred. This perspective occupies the most part of the long digression of the first chapter of Book II and is argued for by means of various puzzling cases and examples: Socrates asleep, Socrates awake (*E* II.1.11); Castor and Pollux sharing the same soul, awake and asleep in turns (*E* II.1.12). These cases test the possible consequences of the Cartesian position and its justifications, and somehow stretch them to the limit. Locke here clearly argues ad hominem, availing himself of Cartesian (or pseudo-Cartesian) premises, such as the real distinction of the soul and body, the aptitude of the soul to think "apart" from the body, the doctrine of beast-machines, etc. As we have no memory of having been always thinking, we are led to suppose (if we are to defend the Cartesian thesis) that actual conscious thinking sometimes occurs in the soul without leaving any trace of itself, and so without having any consequence for the embodied man

whose soul thinks in this mode. The soul thinking on its own (for example, during sound sleep) might have "memories" of its own, desires and volition of its own, which the man who is asleep is never conscious of. In that case, it would be appropriate to say that there are two persons housed in one man. Locke does not push this point very far. He is simply satisfied in presenting the strange hypothesis to his reader, strongly suggesting that there is something morally unacceptable in such a representation. If we were not the same person as our soul (the being that supposedly persists post-mortem and is judged), it would be impossible to rightfully assign merits and demerits. We might be pardoned or condemned for thoughts and volitions which we were never properly conscious of.

The long discussion of thinking souls was not placed by chance at the very beginning of Locke's enquiry into ideas and knowledge. Even more clearly than Book I on innate ideas, it was intended as an anti-Cartesian manifesto. The attack was an indirect strategy intended to convey to the reader a determined metaphysical stance which concerns the *Essay* as a whole. The soul is not essentially but only accidentally a thinking being. Thinking is an "operation" of the mind, just like motion is an operation of the body, capable of remission and interruption (*E* II.19.4). Locke identified in Descartes's essentialism the basis for a metaphysical delusion, namely that of an entirely independent being that could exist apart from the body and could think somehow unconditionally, in a purely intellectual manner. The whole Lockean outlook, epistemological as well as anthropological, may be described as a reaction to this view of a disembodied mind. The most abstract and most remote among our ideas still has its origin in the senses, which means that it owes something to the body. The exercise of thinking is limited in scope (p. 704) and penetration because the organs of senses that provide its ideas are themselves limited in number and acuity; specific trains of ideas certainly depend on the structure of the brain, and on how it allows the stream of "animal spirits" to pass here or there; it is affected by pathological associations (*E* II.32), subject to remission (in episodes of absent-mindedness), to interruption in sleep, and to termination in death. In brief, we are finite corporeal and dependent Creatures. This state affects not only our life, as corporeal mortal beings, but also the intellectual beings that we are; we should not overestimate our mind, but should recognize its limitations if we wish it to be rational and reasonable.

Admittedly, these attacks against Descartes's concept of the mind are not immune from misrepresentation or caricature. It was certainly not in Descartes's intention to deny our finitude as thinking beings, and he never properly said that the human mind, in the condition which is ours here below, can entirely dispense with bodily affections in order to reason and develop intellectual thinking. Instead, his point was that some of our ideas (such as the thought we have of ourselves) were originally in us, and were never abstracted from matter nor copied from bodily representations. Access to such ideas requires silencing the suggestions of the senses and bodily representations: a task which often requires an intense effort ("contention") of the mind applied *against the body*.[31]

Locke's puzzling cases offer other examples of misrepresentation. They draw heavily on the idea that Cartesian human souls and Cartesian human bodies are separable in principle and could live and think separately. But neither Descartes's "real distinction" nor the

animal-machine suggestion were primarily aimed at demonstrating the separability of the soul in human beings. First and foremost, Descartes was attacking the scholastic Aristotelian theory of knowledge, which held that the human immaterial soul (even though it may be separated from the body through a divine act) cannot think, in this terrestrial state, without abstracting its thoughts from bodily impressions and images. Although what is really distinct can be separated by God's power, an excessive stress on separability leads one to conceive the "union" of mind and bodies in men as somewhat accidental—like the pseudo-union of ship and pilot. Descartes knew that his mind–body doctrine could easily be interpreted that way, but he forcefully rejected this interpretation of the union. Although soul and body are really distinct, they are made in such a way that one is, so to speak, "instituted" for the other: one particular body is available for the soul in voluntary motion, and the soul is available for the body in the affections of the senses and the passions. These considerations show that Descartes's subtle doctrines were often quite far away from the *doxa* of substance dualism (or separatism) that Locke was attacking. Indeed, although Descartes was explicitly targeted in these passages, the doctrine under attack resembles more a Christian Platonic doctrine, of the sort defended at the time by someone like Henry More, insisting on the autonomous life (*psychozoia*) and immortality (*psychathanasia*) of the soul.[32]

References

Aaron, Richard I., and Jocelyn Gibb (1937), *An Early Draft of Locke's Essay, Together with Excerpts from His Journals*. Oxford: Clarendon Press.

Arnauld, Antoine (1986), *Des Vraies et des fausses idées*. Paris: Fayard.

Balibar, Étienne (1998), "Introduction", in John Locke, *Identité et différence: An Essay Concerning Human Understanding, II. xvii. L'invention de la conscience*. Paris: Le Seuil, 9–101. (English translation, *Identity and Difference: John Locke and the Invention of Consciousness*. London: Verso, 2013.)

Coventry, Angela, and Uriah Kriegel (2008), "Locke on Consciousness", *History of Philosophy Quarterly* 25: 221–42.

De la Motte, Charles (1999 [1747]), "La Vie de Coste et anecdotes sur ses ouvrages", in John Locke, *Que la Religion Chrétienne est très-raisonnable*, ed. Hélène Bouchilloux and Maria Cristina Pitassi. Oxford: Voltaire Foundation, 231–60.

Downing, Lisa (2015), "Locke and Descartes", in Matthew Stuart (ed.), *A Companion to Locke*. Hoboken: John Wiley & Sons, 100–20.

Downing, Lisa (2018), "Are Body and Extension the Same Thing? Locke versus Descartes (versus More)", in Philippe Hamou and Martine Pécharman (eds.), *Locke and Cartesian Philosophy*. Oxford: Oxford University Press, 63–79.

Gassendi, Pierre (1962 [1644]), *Disquisitio metaphysica seu dubitationes et instantiae adversus Renati Cartesii metaphysicam et responsa. Recherches métaphysiques ou doutes et instances contre la métaphysique de René Descartes et ses réponses*, ed. B. Rochot. Paris: Vrin.

Gibson, James (1917), *Locke's Theory of Knowledge and its Historical Relations*. Cambridge: Cambridge University Press; reprinted 2010.

Hamou, Philippe (2017), "Pierre Coste: Philosophy on the Margins of Locke's *Essay*", in Robert Mankin (ed.), *The Internationalization of Intellectual Exchange in a Globalizing Europe, 1636–1780*. Lewisburg: Bucknell University Press, 75–96.

Hamou, Philippe (2018), "Locke and Descartes on Selves and Thinking Substances", in Philippe Hamou and Martine Pécharman (eds.), *Locke and Cartesian Philosophy*. Oxford: Oxford University Press, 120–43.

Hamou, Philippe, and Martine Pécharman (2018), "Introduction", in Philippe Hamou and Martine Pécharman (eds.), *Locke and Cartesian Philosophy*. Oxford: Oxford University Press, 1–14.

Harrison, John, and Peter Laslett (1965), *The Library of John Locke*. Oxford: Oxford University Press.

Hill, James (2018), "The Cartesian Element in Locke's Anti-Cartesian Conception of Body", in Philippe Hamou and Martine Pécharman (eds.), *Locke and Cartesian Philosophy*. Oxford: Oxford University Press, 49–62.

Jolley, Nicholas (1999), *Locke: His Philosophical Thought*. Oxford: Oxford University Press.

Jolley, Nicholas (2008), "Lockean Abstractionism Versus Cartesian Nativism", in P. Hoffman, D. Owen, and G. Yaffe (eds.), *Contemporary Perspectives on Early Modern Philosophy*. Peterborough, ON: Broadview Press, 157–71.

Jolley, Nicholas (2010), "Dull Souls and Beasts: Two Anti-Cartesian Polemics in Locke", in J. Hill and P. Glombíček (eds.), *Essays on the Concept of Mind in Early Modern Philosophy*. Newcastle upon Tyne: Cambridge Scholars Publishing, 94–114.

Kambouchner, Denis (2012), "Descartes et l'indépendance de l'esprit", *Intellectica* 57: 55–67.

(p. 706) King, Peter (1829), *The Life and Letters of John Locke with Extracts of his Journals and Commoplace Books*. London: H. Colburn.

La Forge, Louis de (1666), *Traité de l'esprit de l'homme de ses facultés ou fonctions et de son union avec le corps suivant les principes de René Descartes*. Amsterdam: Abraham

Wolfgang; reprint, Hildesheim: Georg Olms Verlag, 1984; *Treatise on the Human Mind*, English trans. D. M. Clarke, Dordrecht: Kluwer, 1997.

Lähteenmäki, Vili (2008), "The Sphere of Experience in Locke: The Relation between Reflection, Consciousness and Ideas", *Locke Studies*, 8: 59–100.

Leibniz, Gottfried Wilhelm (1989 [1692]), "Critical Thoughts on the General Part of the Principles of Descartes", in Leibniz, *Philosophical Papers and Letters*, ed. Leroy E. Loemker. Dordrecht, Boston, New York: Kluwer Academic Publishers, 383–412.

Locke, John (1964 [1823]), *The Works of John Locke*, ed. E. Law, new edition corrected, 10 vols. London: Thomas Tegg and al.; reprint Aalen: Scientia, 1964.

Locke, John (1975), *An Essay Concerning Human Understanding*, ed. P. H. Nidditch. Oxford: Clarendon Press [*E*].

Locke, John (1989 [1755]), *Essai philosophique concernant l'entendement humain*, French trans. Pierre Coste. Amsterdam: J. Schreuder and P. Mortier le Jeune; reprint, with foreword by E. Naert, Paris: Vrin.

Locke, John (1990 [1671]), *Drafts for the Essay concerning Human Understanding, and other Philosophical Writings*, ed. P. H. Nidditch and G. A. G. Rogers. Oxford: Oxford University Press.

McCann, Edwin (1986), "Cartesian Selves and Lockean Substances", *The Monist*, 69: 458–82.

Rabb, J. Douglas (1985), *John Locke on Reflection, A Phenomenology Lost*. Washington, DC: Center for Advanced Research in Phenomenology.

Radner, Daisie (1988), "Thought and Consciousness in Descartes", *Journal of the History of Philosophy* 36: 439–52.

Rozemond, Marleen (1995), "Descartes's Case for Dualism", *Journal of the History of Philosophy* 33: 29–63.

Rozemond, Marleen (1998), *Descartes's Dualism*. Cambridge, MA: Harvard University Press.

Schouls, Peter A. (1974–5), "The Cartesian Method of Locke's *Essay concerning Human Understanding*", *Canadian Journal of Philosophy* 4: 579–601.

Schouls, Peter A. (1980), *The Imposition of Method: A Study of Descartes and Locke*. Oxford: Oxford University Press.

Schuurman, Paul (2004), *Ideas, Mental Faculties, and Method: The Logic of Ideas of Descartes and Locke and its Reception in the Dutch Republic, 1630–1750*. Leiden: Brill.

Sergeant, John (1984 [1697]), *Solid Philosophy Asserted against the Fancies of the Ideists*. London: Roger Clavil; reprint New York: Garland, 1984.

Thiel, Udo (2011), *The Early Modern Subject*. Oxford: Oxford University Press.

Voltaire, François Marie-Arouet (1733), *Letters Concerning the English Nation*. London: Printed for C. Davis and A. Lyon.

Notes:

(*) Some passages in the first and last parts of this chapter are borrowed from my own contributions to the volume *Locke and Cartesian Philosophy*; see Hamou 2018 and Hamou and Pécharman 2018. Thanks to Martine Pécharman for allowing me to use this material.

(1) Lady Masham to Jean le Clerc on 12 January 1705, quoted in Schuurman (2004: 16).

(2) Locke 1964 [1823]: IV.48.

(3) Locke 1975, hereafter *E*.

(4) Nicholas Jolley argues for this view in Jolley 2008 and Jolley 2010.

(5) See *E* IV.10.7. This point was developed in Locke's manuscript "Deus Des Cartes's proof of a god from the Idea of necessary existence examined 1696" (MS Locke c. 28, fos. 119r–120v), in King 1829: 312–15.

(6) See for example *E* II.11.11: "If [Brutes] have any *Ideas* at all, and are not bare Machins (as some would have them) we cannot deny them to have some Reason"; and II.1.19: "They must needs have a penetrating sight, who can certainly see, that I think, when I cannot perceive it my self, and when I declare, that I do not; and yet can see, that Dogs or Elephants do not think, when they give all the demonstration of it imaginable, except only telling us, that they do so."

(7) On Coste's annotations in Locke 1989 [1755], see Hamou 2017.

(8) See *E* II.1.10–19, Coste's footnotes in Locke 1989 [1755], and my comments in Section 3.

(9) According to Coste's testimony, as reported by his friend and biographer de la Motte, "Locke never missed the least opportunity to run down Descartes, father Malebranche, the art of thinking and the most famous Parisian academicians" (translation from de la Motte 1999 [1747]).

(10) *Regulae ad directionem ingenii*, VIII, quoted in Gibson (1917: 207–8); see AT X.397–8/ CSM I.31.

(11) These notes, titled "space", have been transcribed and published in Aaron and Gibb 1937: 94–6, 99–103, 105.

([12]) I am indebted here to the insightful chapters of Hill 2018 and Downing 2015 and 2018.

([13]) See Descartes to Arnauld, July 29, 1648: “We do not sufficiently consider that nothing can have no properties; otherwise, seeing that there is true extension in the space we call empty, and consequently all the properties necessary for the nature of body, we would not say that it was wholly empty, that is, mere nothingness” (AT VII.223/CSMK 358).

([14]) See *Principles of Philosophy* II.16 (AT VIIIA.49/CSM II.230): “since there is extension in it, there must necessarily be substance in it as well”.

([15]) See Descartes to Morus: “For in a space—even an imaginary and empty space—everyone readily imagines various parts of determinate size and shape; and some of the parts can be transferred in imagination to the place of others, but no two of them can in anyway be conceived as co-penetrating each other at the same time in one and the same place, since it is contradictory for this to happen without some part of space being removed” (AT V.271/CSMK 362).

([16]) Locke had access to it through the collection of Cartesian letters that he owned; see Harrison and Laslett 1965: 101.

([17]) The distinction between hardness (a secondary quality) and solidity (a primary one) that Locke is making early in the *Essay* (see *E* II.3.3–4) is indeed a Cartesian one (see *Principles* II.4, AT VIIIA.42/CSM I.224). For Locke, just as for Descartes, it is not on account of the tactile sensation of ordinary body that we know that solidity is an *essential* property of all bodies whatsoever, those that we can touch as well as those that we can’t.

([18]) See Descartes to Morus (AT V.269/CSMK 361): “Now tangibility or impenetrability in body is something like the ability to laugh in man; according to the common rules of logic it is a *property of the fourth kind*, and not a true and essential differentia such as I claim extension to be.”

([19]) See Aaron and Gibb (1937: 94): “if it be possible to suppose nothing, or, in our thoughts, to remove all manner of beings from any place, then this imaginary space is just nothing, and signifies no more but a bare possibility that body may exist where now there is none”.

([20]) In *E* II.23.17: “the cohesion of solid, and consequently separable parts” is presented as a “primary idea” peculiar to body.

([21]) See *E* II.13.23: “those who dispute for or against a vacuum, do thereby confess they have distinct ideas of vacuum and plenum, i.e. that they have an idea of extension void of solidity, though they deny its existence; or else they dispute about nothing at all”.

([22]) AT VII.246/CSM II.171. The phrase is taken verbatim from Arnauld’s objections, where it is used in order to account for the passage of the Third Meditation where

Descartes suggests that if any power is supposed in my mind, I should be conscious of it (AT VII.49/CSM II.234).

([23]) See Radner 1988.

([24]) On these two senses of reflection see Lähteenmäki 2008.

([25]) This view of consciousness is reminiscent of Brentano's concept of inner-perception. The affinity between Locke and Brentano has been suggested by Rabb (1985), and more recently in Coventry and Kriegel 2008. The contrast between reflection and consciousness is also defended in Thiel 2011.

([26]) La Forge 1666: ch. VI, 57. See also Arnauld 1986: ch. 24.

([27]) This famous locution only appears once in Locke, in a note from his journals of 1696: "Our own existence is known to us by a certainty yet higher than our senses can give us of the existence of the other things, and that internal perception is a self consciousness" (MS Locke c28, fos. 119^{r}–120^{v}, quoted in King 1829: 312.

([28]) Descartes's name is not mentioned in that chapter. It was, however, with approval, in the corresponding passages from Draft A (Locke 1990 [1671]: §10, §27) and B (Locke 1990 [1671]: §35). For example, A §27: "the Understanding knows undoubte[d]ly that while it thinks, reason and imagins, it is or hath existence. Or that there is something that knows & understands which according to Cartes & I think in truth is the most certain & undoubted proposition that can be in the mind of a man."

([29]) Descartes answers this sort of objection in the Fifth Replies (AT VII.356), as well as in his 1641 Letter to Hyperaspistes (AT III.423–4); denying that there is any absurdity in the consequence, he simply accepts it: "You say you want to stop and ask whether I think the soul always think. But why should it not always think since it is a thinking substance?" (AT VII.356/CSM II.246–7).

([30]) For an enlightening discussion, see Jolley 2010.

([31]) Cf. Kambouchner 2012; Rozemond 1998.

([32]) This point has been made in McCann 1986.

Philippe Hamou

Paris Nanterre University

Anne Conway’s Response to Cartesianism

Christia Mercer

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Abstract and Keywords

Anne Conway (1631–79) was an English philosopher whose only work, *The Principles of the Most Ancient and Modern Philosophy*, was published posthumously in 1690. Conway’s arguments against Descartes’s account of matter constitute a cutting criticism of his views and offer significant insight into an important and under-studied anti-Cartesian trend in the second half of the seventeenth century. Conway’s response to Descartes helps us discern some of the more original and radical ideas in her philosophy. Like so many other significant early modern women, Conway was left out of the history of philosophy by later thinkers.

Keywords: Anne Conway, anti-cartesianism, matter, Platonism, vitalism, early modern women

(p. 707) ANNE Conway was an English philosopher (1631–79) whose only work, the *Principles of the Most Ancient and Modern Philosophy*, was published posthumously in 1690.[1] Although her philosophy is a highly original response to the period’s main philosophical problems and her contemporaries offered the work high praise,[2] Conway was left out of the history of philosophy by later thinkers, like so many other significant early modern women (see O’Neill 1998). After the text’s rediscovery in the twentieth century, the philosophical subtlety of the *Principles* has been difficult to discern. Because the book draws heavily from Christian, Jewish, and Platonist sources and because Conway herself has such wide-ranging and heterodox ideas, scholars have struggled to locate the proper perspective from which to view her philosophical proposals.[3]

(p. 708) In Leibniz’s comments about Conway’s philosophy, he notes its debt to Platonism, relation to Cartesianism, and close affinity to his own thought. By such means, he presents us with an entry into our topic. As he explains in 1697:

> My views in philosophy approach somewhat closely those of the late Countess of Conway, and hold a middle position between Plato and Democritus, since I believe that everything happens mechanically as Democritus and Descartes maintain … and I believe that nevertheless everything also happens vitally and according to fi-

> nal causes; everything replete with life and perceptions contrary to the opinion of the followers of Democritus.
>
> (Leibniz 1887: III.217)

In this chapter, I give an overview of Conway's metaphysical system (Section 1), before turning to a summary of her views about the mechanical philosophy (Section 2). In order to understand Conway's response to Descartes's thought, we must consider the Platonist assumptions that motivate major parts of her metaphysics (Section 3) and that act as implicit premises in her arguments against Descartes's account of matter. Conway's arguments (Section 4) constitute a cutting criticism of Descartes's views and offer significant insight into an important and under-studied anti-Cartesian trend in the second half of the seventeenth century. Her response to Descartes helps us discern some of the more original and radical ideas in her philosophy (Section 5).

1. Conway's Principles: Overview

Anne Conway's *Principles* offers a metaphysics that is constituted of three distinct substances and that she thinks will appeal to all people, including Christians, Jews, and Muslims. For our purposes, the most important attribute of the first substance or God is that the divinity is a "living goodness" (Conway 1996 [1690]: 7.6, 45). Explicitly endorsing "the Kabbalists", she refers to divine power as a spiritual vitality.[4] Not only is God "spirit, light, and life" (Conway 1996 [1690]: 1.1, 9), so is everything that God produces (Conway 1996 [1690]: 9.6, 66; 7.6, 45). The second substance, which she refers to interchangeably as "Logos" and "Christ", is a "medium" between God and creatures and is best understood as the order or blueprint of the created world.[5] By calling this second substance "Christ", she attempts to navigate features of the Christian story in a manner that might not offend orthodox Christians, while appealing to non-Christians. (p. 709) The *Principles* both proposes that the second substance or plan of the world is the "son" of God—what I call "the metaphysical Christ"—and suggests that Jesus of Nazareth (the historic figure whose life is chronicled in the New Testament)—what I call "the historic Christ"—was an insightful prophet who uniquely understood the justice and plan of God's world, but was no more divine than any other creature. In other words, the uniqueness of the historic Christ is epistemological and moral rather than ontological: his difference from other creatures derives from his understanding of the logos or metaphysical Christ, which is roughly God's plan for the world, and his willingness to embrace that plan.[6]

The third and final substance is the created world, which is constituted of an infinity of modes of vitality or "creatures". Because each creature stands in sympathetic harmony with the others, it will transmute over time to achieve an ever-developing love and affinity for all other creatures. Because the Logos constantly moves toward the good, each of the infinity of creatures is on course to be increasingly more vital and morally perfect. The smallest and most pathetic creature will eventually become as perfect as anything other than God can be. Conway writes:

> If anyone asks what are these more excellent attributes, I reply that they are the following: spirit or life and light, by which I mean the capacity for every kind of feeling, perception, or knowledge, even love, all power and virtue … [which] the noblest creatures have or can have, [and] even the vilest and most contemptible.
>
> (Conway 1996 [1690]: 9.6, 66)

The vital goodness of God entails that creatures bear a robust sympathetic harmony among themselves which guarantees that each of the third substance's modes will attain a kind of perfection. This radical perfectibility is a distinctive—and distinctively radical—feature of Conway's system. About the relation between God's goodness and that of creatures, she explains: "The great difference between God and creatures" is that:

> he is one, and this is his perfection, namely to have need of nothing outside himself. But a creature, because it needs the help of its fellow creatures, must be multiple in order to receive this help. For whatever receives something is nourished by it and thus becomes part of it.
>
> (Conway 1996 [1690]: 7.4, 54)

2. Conway and Cartesian Natural Philosophy

Despite the genuine differences among scholastic philosophers, most would agree to the following claims: nature is full of substances that act and are acted upon; concrete (p. 710) individual substances are constituted of two principles, matter and form; substantial form is the active principle in that it is the source of change in nature; matter is the passive principle in that it has the capacity to receive and retain the changes so conferred; the corporeal substance, as a unity formed of the active and passive principles, possesses innate powers that incline the substance to behave in characteristic ways (e.g. fire contains the innate power to heat and to rise while rocks possess the innate tendency to fall); and the substantial form grounds the unity and identity of the individual concrete thing (for some scholastics, the passive principle plays a role here too).[7] Given our concerns, it is particularly significant that, for many scholastics, substantial forms contribute not just to worldly activity but also to its goodness. Aquinas argues, for example, that because "God is the most perfect of agents" he will "introduce His likeness into created things most perfectly", and because "created things cannot attain to a perfect likeness of God so long as they are confined to one species of creature" it "is necessary" for the divinity to create a variety of substantial forms so that "a perfect likeness of God might be found in things according to their manner of being" (Aquinas 1975: II, 45 [2]).

Proponents of the new mechanical philosophy were committed to strip nature of substantial forms and explain natural phenomena by other means. They proudly announced the incompatibility of Aristotelianism with their own "new philosophy".[8] In his *Principles of Philosophy* of 1644, for example, Descartes offers his account of "the entire visible world", according to which there is "no phenomenon of nature" that cannot be explained

by the principles enumerated in his treatise, namely "the various sizes, shapes, and motions which are found in all bodies" (*Principles of Philosophy* IV. 199, AT VIIIA.323/CSM I. 285). The mechanists disagreed on many details, but they tended to fill nature with extended matter—whether the *res extensa* of Descartes, the atoms of Gassendi, or one of the less popular accounts of corporeity—whose actions cause and explain natural phenomena. For the majority of mechanical philosophers, the apparent features of a body (its shape, size, solidity, color, taste, texture, etc.) are explained by means of the configuration and motion of its material constituents.

The editors of this Handbook are right to highlight Descartes's wide-ranging influence, but we should not overstate the centrality of his ideas in the second half of the seventeenth century. Although the vast majority of philosophers knew the Frenchman's name and the basics of his views, many found his metaphysics unoriginal and an implausible grounding for his natural philosophy. Even Henry More, who seems to have been the first proponent of Cartesianism in England, asserts in the Preface to his *Antidote Against Atheism* that although he "can never highly enough admire" Descartes's "Mechanical wit", he must confess to finding him "no Master of Metaphysics" (p. 711) (More 1653: A8r).[9] And lots of thinkers lumped Descartes's contributions in natural philosophy together with Kenelm Digby and other lesser figures.[10]

When Leibniz situates his own philosophy as a "middle position between Plato and Democritus", he is expressing two common opinions among philosophers in the final decades of the seventeenth century. First, Leibniz places Descartes's mechanical physics as one among many philosophical options in a tradition going back to Democritus. Second, although he is willing to endorse the mechanical explanations of "Democritus and Descartes", he is also committed to rejecting the metaphysical grounding of the mechanical philosophers and to replacing it with a metaphysics "replete with life and perceptions".

Leibniz was by no means alone in this. In the second half of the seventeenth century, Europe was full of philosophers inclined to endorse the mechanical physics in limited ways while simultaneously rejecting the metaphysics offered by early mechanists like Descartes, Gassendi, and Hobbes. Like Leibniz, Conway was keen to appeal to mechanical physical explanations in accounting for some natural phenomena, while also flatly rejecting the metaphysical foundation that was supposed to ground the physics of Descartes and many other mechanists.[11] Conway and many others saw a similarity among the mechanists in explaining physical phenomena in terms of the configuration and motion of material components. Although she found Descartes's account of matter among the most inadequate of those offered by mechanical philosophers, she nonetheless acknowledged that "it cannot be denied that Descartes taught many distinctive and ingenious things about the Mechanical aspect of natural operations and how all natural motions proceed according to mechanical laws and rules" (Conway 1996 [1690]: 9.2, 64). Like many other philosophers writing in the 1670s and 1680s, Conway ranked Descartes's contributions in natural philosophy on a par with other mechanists, suggest-

ing that "Cartesianism", "Hobbesianism", and "Spinozism" are equally influential in their account of body, and similarly mistaken (Conway 1996 [1690]: 9.1–9, 63–70).

Like Leibniz and many lesser-known contemporaries, Conway thought the mechanists had gone too far in stripping nature of its own inherent activity and diminishing its creaturely diversity; and so she sought better metaphysical foundations for the mechanical explanatory model.[12] Proposing her own metaphysics as a solution to the mistakes of mechanists like Descartes, Hobbes, and others, she insists that such philosophers "have generally erred and laid a poor foundation" (Conway 1996 [1690]: 9. S.1, 63). Because of their "absurd foundation, many other most crass and dangerous errors have (p. 712) arisen, not only in philosophy but also in theology with great injury to the human race, to the detriment of true piety, and in contempt of the most glorious name of God" (Conway 1996 [1690]: 9.1, 63). As we will see, Conway intends to replace the treatment of nature as "a clock" with an account of nature as "a living body with life and perception" (Conway 1996 [1690]: 9.2, 64).

3. Conway and Platonism

Four traditional Platonist assumptions ground Conway's account of God's essence, the relation it bears to its products, and the interrelations among creatures. These assumptions motivate her most cutting responses to Cartesianism.[13]

1. The *Supreme Being Assumption* maintains that God is the most perfect, vital, and unified being and that each of these attributes is proportional in the sense that the more perfection something has, the more it has vitality and unity.

2. The *Theory of Emanative Causation* claims that God shares the divine attributes with every divine product, although the product has them in a manner inferior to God. More precisely, for a being A that is more perfect than a being B, A can emanate its attribute f-ness to B in such a way that neither A nor A's f-ness is depleted in any way, while B has f-ness, though in a manner inferior to the way it exists in A. The emanative process is continual and spontaneous so that B will have f-ness if and only if A emanates f-ness to it.[14] According to the tradition of emanative causation that Conway endorses, the f-ness of B is coexistent with the emanative activity of A.[15] For theists like Conway, one of the great benefits of the Theory of Emanative Causation is that it allows God to be both transcendent from and immanent in creatures. Each stratum in the hierarchy has its attributes independently of its emanated effect and yet those attributes are immanent in the effect. As Conway puts it, God is "in a real sense an essence or substance distinct from his creatures" (Conway 1996 [1690]: 1.3, 9) and yet "is not divided or separate from them but present in everything most closely and intimately in the highest degree". God "gives to them … essence, life" and "whatever good they have" (Conway 1996 [1690]: 1.3, 9). The divine "ocean" will necessarily overflow "in its perpetual emanation and continual flux for the production of creatures" (Conway 1996 [1690]: 2.4, 13). The first substance (p. 713) emanates the second substance or Logos, which itself emanates the third. Each is

a stratum in the hierarchy of vital perfection and each shares the core divine attributes, though the second substance has them more perfectly than does the third.

For thinkers like Conway, the first two Platonist assumptions imply a good deal about creatures and their interrelations. Consistent with the Supreme Being Assumption, the attributes of perfection, vitality, and unity are proportional, in the sense that when a product of God (whether the world or a creature) increases in vitality, it will also increase in perfection and unity. And consistent with the Theory of Emanative Causation, the result of God's emanation is a product that contains the divine attributes although in a manner inferior to God. Not only does each individual creature receive the divine attributes, so does their entirety.

3. The *Principle of Plenitude* assumes that God fills the world with as many diverse forms of vitality as possible and that these diverse creatures are unified with one another in perfect harmony: "The greater and more magnificent his works, the more they show the greatness of the maker" (Conway 1996 [1690]: 3.6, 17). For Conway, the perfection of God entails that "his creatures are infinite and created in an infinity of ways" (Conway 1996 [1690]: 3.4, 16). Were the world to lack such infinities, its "paltry and unseemly scale" would not express "the great majesty of God" (Conway 1996 [1690]: 2.6, 17). Therefore, "he has multiplied and always multiplies and increases the essences of creatures to infinity" (Conway 1996 [1690]: 3.4, 17).

The unity among creatures increases the goodness of the created world in significant ways. Echoing centuries of Platonists, Conway explains: "Now, the basis of all love or desire [among creatures], which brings one thing to another, is that they are of one nature and substance, or they are like each other" (Conway 1996 [1690]: 7.3, 46). Like many other Platonists, Conway takes God's essence to entail that the created world is chock-full of creatures standing in perfect unity with one another, which she understands in terms of sympathy and love: there is "a certain universal love in all creatures for each other" (Conway 1996 [1690]: 7.3, 47). But Conway goes beyond contemporary Platonists like Henry More and Leibniz in embracing radical perfectibility, which follows from her understanding of Sympathetic Harmony.

4. *Sympathetic Harmony*, according to Conway, implies that each creature bears *an enhancement relation* to every other. When two creatures have an enhancement relation, an increase in the goodness of one will promote an increase in the goodness of another, although the relation is non-reciprocal (that is, the increase in the second cannot then cause an increase in the first).16 Not only does the divinity fill the world up, it stands each creature in such a close relation to all the others that "all creatures … are inseparably united one to another" so that "they can act upon one another at the greatest distance" (Conway 1996 [1690]: 3.10, 20). Christian Platonists like Leibniz dared not assume that non-human creatures would bear an enhancement relation to all others and (p. 714) so restricted his version of the enhancement to "rational minds". Conway saw no reason to so limit the goodness of God:

> God has implanted a certain universal sympathy and mutual love into his creatures so that they are all members of one body and all, so to speak, brothers, for whom there is one common father … There is also one mother, that unique substance or entity from which all things have come forth, and of which they are the real parts and members.
>
> (Conway 1996 [1690]: 6.4, 31)

Conway's universal application of the enhancement relation entails that each and every creature will eventually increase in perfection, both moral and epistemic.

4. Conway's Rejection of Cartesian Matter

Conway rejected any philosophy that posited passive mass or extension. She found any sort of passive stuff to be inconsistent with God's nature, and took particular offense to Descartes's account of "dead matter":

> touching upon the Cartesian Philosophy, it claims that every mere body is a dead mass, one that is altogether not alive and is lacking perception of any kind whatsoever and it [mass] is altogether incapable of this [perception] for all eternity … This is altogether in opposition to the foundations of our Philosophy … which can more accurately be called Anti-Cartesianism.
>
> (Conway 1996 [1690]: 9.2, 62–3)

Conway uses the Platonist assumptions articulated in the previous section as implicit premises in her most original and powerful arguments against the Cartesian notion of matter. I will explicate the three most significant of these here.

4.1. The Passivity Argument

When the mechanical philosophers rid nature of substantial forms, they removed the standard means of activating corporeal things. When they filled the natural world with passive extended stuff, their views seemed deeply problematic to lots of seventeenth-century philosophers, especially those committed to the goodness, plenitude, and harmony of God's world. Whether the material component of an individual body was Descartes's *res extensa* or Gassendi's collection of atoms, its activity had to be imported from outside itself. Descartes maintains that God "preserves motion in matter" while Gassendi proposes that God infuses motion into atoms at their creation.[17] The passivity (p. 715) problem arises because the material component of nature has nothing *in its nature* that can act as the source of its activity. In one of his most important early works, Leibniz makes the point succinctly, complaining about the mechanists' account of matter that: "Matter is devoid of motion in itself [*in se*]."[18] In Conway's words, these mechanists demote the material component of nature so that it is "nothing but … a certain mass" (Conway 1996 [1690]: 7.3, 48).

Conway is admirably clear about the passivity problem and offers her vitalism as a means to avoid it. Because God is an "infinite fountain and ocean of goodness" that flows "perpetually", the "divine essence" must be "communicated to creatures" (Conway 1996 [1690]: 2.4, 14; 5.4, 25). She offers two slightly different arguments against material passivity. The first finds its main motivation in the Supreme Being Assumption in that it assumes that goodness and vitality are proportional, from which it follows that whatever has goodness must also have vitality. She argues:

> Since God is infinitely good and communicates his goodness to all his creatures in infinite ways, so that there is no creature which does not receive something of his goodness … and since the goodness of God is a living goodness, which possesses life, knowledge, love, and power, which he communicates to his creatures, how can any dead thing proceed from him or be created by him, such as mere body or matter … ?
>
> (Conway 1996 [1690]: 7.7, 44–5)

For Conway, God's infinite goodness is "a living goodness". Because everything in the created world has goodness, and because whatever has goodness must also possess vitality, every existing thing must be vital. There can be no passive or "dead" matter.

Her second argument against material passivity owes more to the Theory of Emanative Causation in that it insists that divine attributes are necessarily transmitted to all creatures. She writes: "The communicable attributes are that God is spirit, light, life, that he is good … Among these communicable attributes there are none which is not alive and life itself … [S]ince every creature shares" the communicable "attributes with God, I ask what [divine] attribute produces dead matter, or body, which is incapable of life?" Responding to her own question, she explains:

> There can be no dead reality of which he is or could be a part … For what attributes or perfections can be assigned to dead matter which are analogous to those in God? If we inquire closely into the matter, we shall discover nothing at all, for every one of his attributes is alive, indeed, is life itself … Moreover, since God's creatures, insofar as they are creatures, must be like their creator in certain things, I ask, in what way is this dead matter like God? … There can be nothing like that either in God or in creatures.
>
> (Conway 1996 [1690]: 7.2, 45)

(p. 716) The communicable divine attributes are emanated to creatures so that creaturely natures are derived from those attributes. If there were a passive component in nature, that passivity would have to come from God and in that sense be derived from a divine attribute. But God has no such attribute. "One must then conclude that dead matter is … an impossible thing" (Conway 1996 [1690]: 7.2, 46). There can be no products of God that are not vital and so there can be no purely passive thing in nature.[19]

4.2. The Sameness Argument

Conway's second argumentative strategy against Cartesian matter finds its legs in the ontological homogeneity of extended matter. For those mechanists who made matter everywhere the same, it was common to make God the source of corporeal differences. Platonists like Conway found the sameness of matter to violate the Principle of Plenitude.20

In the *Principles of Philosophy*, Descartes explains that:

> [body] has one principal property which constitutes its nature and essence and to which all its other properties are referred. Thus, extension in length, breadth, and depth constitutes the nature of corporeal substance … Everything else which can be attributed to body presupposes extension and is merely a mode of an extended thing. (*Principles of Philosophy* I. 53, AT VIIIA.25/CSM I.210)

Every feature that can be attributed to body is a mode of extension, so to attribute a shape to some object is to say that it is extended in a certain fashion. The rectangular shape of a body, for example, is a configuration of extension. It follows that all the differences in corporeal nature are merely different configurations of the same underlying material stuff.

Conway neatly articulates the sameness problem and shows off the power of her vitalism to avoid it. Standing in a long line of Platonists, she insists that God does "as much as he can" and fills the world with a multiplicity of creatures (Conway 1996 [1690]: 3.4, 16). But she exceeds the tradition by extending plenitude to infinity *in infinitum*:

(p. 717)

> Since God is infinitely powerful, there can be no number of creatures to which he could not always add more … Certainly, his will, goodness, and generosity are as full and far-reaching as his power. Thus it clearly follows that his creatures are infinite and created in an infinity of ways, so that they cannot be bounded or limited by number or measure … Since it has already been demonstrated that God … does everything he can do, it follows that he has multiplied and always multiplies and increases the essences of creatures to infinity.
>
> (Conway 1996 [1690]: 3.4, 16–17)

For Conway, the Principle of Plenitude demands ontological diversity, which for her means that there be an infinity of different expressions or modes of the divine vital goodness in the created world. Material sameness contradicts the fundamental goodness of the divine nature.

4.3. The Perfectibility Argument

Conway's third argument against Descartes's notion of matter is due to its incompatibility with the world's perfectibility. The perfectibility problem arises because "dead matter"—

whether that of the Cartesians or other mechanists—disallows "any degree of life or perception". Without mutual perception, there can be no "mutual affection" among creatures and so no movement toward the good. By ridding the world of universal sympathy and disallowing universal creaturely enhancement, Cartesian matter blocks the possibility of an ever-increasing worldly goodness.

Conway offers two slightly different versions of the argument. The first focuses on the kinds of natural changes allowed by the advocates of passive matter. While acknowledging that mechanical accounts of nature permit variations among bodies, these changes do not themselves add any normative value to the world:

> For what further progress in goodness and perfection can dead matter make? For after it has undergone infinite changes of motion and figure, it is forced to remain dead as before. And if motion and shape contribute nothing to life, then that matter can never improve or ever progress in goodness in the smallest degree. For suppose that this dead matter, or body, has assumed all forms and has been changed into all kinds of shape, both the most regular and precise. What use is this body or matter since it lacks all life and perception?
>
> (Conway 1996 [1690]: 7.2, 46)

Although passive matter can be configured in any number of ways, none of its changes or configurations contributes to the goodness of the world. Passive matter is inconsistent with worldly perfectibility and hence divine goodness.

The second version of the perfectibility argument focuses on the pleasure and joy that God's creatures must eventually have in relation to one another. For Conway, God's goodness entails that creatures will eventually consciously perceive the close connections among themselves, experience creaturely love, bask in the knowledge of divine goodness, and be increasingly full of joy. By entirely disallowing creaturely sympathy, (p. 718) love, and enjoyment, philosophers like Descartes strip the world of its joy. As she dramatically makes the point:

> how can a dead thing come from him who is infinite life and love? Or, how can any creature receive so vile and diminished an essence from him (who is so infinitely good) that it does not share any life or perception? … Did not God create all his creatures to this end, namely, that they be blessed in him and enjoy his divine goodness in their various conditions and states? Moreover, how could this be possible without life or perception? How can anything lacking life enjoy divine goodness?
>
> (Conway 1996 [1690]: 7.2, 45)

Conway was concerned to replace the vile deadness of Descartes's notion of matter with a world constituted of creatures with "various degrees of life, which have a beginning but no end.[21] Thus a creature is capable of a further and more perfect degree of life, ever greater" (Conway 1996 [1690]: 9.7, 67). For her, the goodness of God entails the per-

fectibility of creatures to infinity, which requires that creatures perceive, enhance, and love one another so that they benefit from mutual moral development. God’s goodness demands the perfectibility of all creatures, which develop “to infinity”. Passive matter does not allow creaturely moral development and therefore is inconsistent with divine goodness.

5. Conclusion: Conway’s Radical Vitalism

In her *Principles*, Conway’s overarching argument for her account of the world and the vitalism at its core is that it best captures the full implications of divine perfection, vitality, unity, and love and solves many of the most significant philosophical problems of her time. She encourages readers to reflect on the nature of God’s attributes and see the third substance as constituted of an infinity of vital modes whose capacities for insight and joy are themselves infinite. God’s living goodness entails that the world be constituted of mutually sympathetic creatures, which perceive, love, and benefit from one another’s moral development. Conway not only increases the number of good-making creatures in the world to infinity, she augments the unity among them to include mutual perception, love, perfectibility, and its accompanying joy.

The power of Conway’s vitalism resides significantly in her view that the mutual perception among all creatures exponentially amplifies worldly goodness: if each creature perceives and is enhanced by all the others, then an increase in the goodness of one creature is able to benefit all the others and thereby promotes universal moral improvement. (p. 719) Her vitalist pluralism fills the world with an infinity of diverse sympathetic creatures capable of progressing infinitely toward the good until there evolves a “universal love in all creatures” (Conway 1996 [1690]: 7.3, 47). Since “it is the nature of creature … always to become more and more like the creator”, every creature “is always able to become more and more spiritual” or vital (Conway 1996 [1690]: 7.1, 42). In the end, God’s goodness requires that all creatures progress toward perfection and do so “to infinity”.

Given Conway’s understanding of the divine nature and its implications, her arguments against Descartes’s account of nature are impressive. As we have seen, her main objection to Descartes—and to anyone else who would add passive stuff to nature– is that any notion of matter as merely extended contradicts God’s vital goodness.

Equally impressive is her willingness to take the implications of God’s perfection to its logical extreme in a way that few (if any) of her contemporaries were ready to do. Unburdened by the weight of orthodoxy, she was prepared to push standard Platonist assumptions to their logical and radical ends in an attempt to create a metaphysics that would solve the most significant philosophical problems of her day, capture the full goodness of God, and appeal to people of all religions and all circumstances.

In this chapter, I have explicated Conway’s cutting rejection of Descartes’s account of passive matter. Given her assumptions about the vital goodness of God and what that implies about creatures, her arguments are persuasive. As this brief account of her system

suggests, the *Principles of the Most Ancient and Modern Philosophy* contains a metaphysics of astonishing originality and audacity. It stands as an insightful critique of Cartesianism and powerful example of the insights that the study of long-forgotten women can afford historians of philosophy.

References

Aquinas, Thomas (1975), *Summa Contra Gentiles*, ed. and trans. James F. Anderson. Notre Dame: University of Notre Dame Press.

Conway, Anne (1996 [1690]), *The Principles of the Most Ancient and Modern Philosophy*, ed. Allison P. Coudert and Taylor Corse. Cambridge: Cambridge University Press. [Originally published in 1690.]

Conway, Anne (forthcoming), *Principles of the Most Ancient and Modern Philosophy*, ed. and trans. Andrew Arlig, Marcy Lascano, Christia Mercer, and Jasper Reid. Oxford New Histories of Philosophy. Oxford: Oxford University Press.

Gassendi, Pierre (1658), *Opera Omnia*, 6 vols. Lyon: Laurent Anisson and Jean Baptiste Devenet.

Gassendi, Pierre (1972), *The Selected Works of Pierre Gassendi*, trans. Craig Brush. New York: Johnson Reprint Corporation.

Grey, John (2017), "Conway's Ontological Objection to Cartesian Dualism", *Philosophers' Imprint* 17: 1–19.

Hutton, Sarah (2009), *Anne Conway: A Woman Philosopher*. Cambridge: Cambridge University Press.

Hutton, Sarah, and Marjorie H. Nicholson, eds. (1992), *The Conway Letters: The Correspondence of Anne Viscountess Conyway, Henry More, and their Friends (1642–1684)*. New York: Oxford University Press.

(p. 720) Kristeller, Paul O. (1979), *Renaissance Thought and Its Sources*, ed. Michael Mooney. New York: Columbia University Press.

Lascano, Marcy P. (2013), "Anne Conway: Bodies in the Spiritual World", *Philosophy Compass* 8: 327–36.

Leibniz, Gottfried Wilhelm (1887), *Die Philosophischen Schriften*, ed. C. I. Gerhardt. Berlin: Weidemann Buchhandlung.

Leibniz, Gottfried Wilhelm (1923), *Sämtliche Schriften und Briefe*, ed. Deutsche Akademie der Wissenschaften. Berlin: Akademie Verlag. [Cited by series, volume, and page number.]

Leibniz, Gottfried Wilhelm (1981), *New Essays on Human Understanding*, ed. Jonathan Bennett and Peter Remnant. Cambridge: Cambridge University Press.

Loptson, Peter (1998), *The Principles of the Most Ancient and Modern Philosophy*. Delmar, NY: Scholar's Facsimiles and Reprints.

Menn, Stephen (1998), *Descartes and Augustine*. New York: Cambridge University Press.

Mercer, Christia (2001), *Leibniz's Metaphysics: Its Origins and Development*. New York: Cambridge University Press.

Mercer, Christia (2012), "Platonism in Early Modern Natural Philosophy: The Case of Leibniz and Conway", in Christoph Horn and James Wilberding (eds.), *Neoplatonic Natural Philosophy*. Oxford: Oxford University Press, 103–26.

Mercer, Christia (2015), "Seventeenth-Century Universal Sympathy: Stoicism, Platonism, Leibniz, and Conway", in Eric Schliesser (ed.), *Sympathy: A History*. New York: Oxford University Press, 107–38.

More, Henry (1653), *An Antidote Against Atheism*. London: Roger Daniel.

O'Neill, Eileen (1993), "Influxus Physicus", in Steven Nadler (ed.), *Causation in Early Modern Philosophy*. University Park, PA: Penn State Press, 27–55.

O'Neill, Eileen (1998), "Disappearing Ink: Early Modern Women Philosophers and their Fate in History", in Janet Kournay (ed.), *Philosophy in a Feminist Voice: Critiques and Reconstructions*. Princeton: Princeton University Press, 17–62.

Pasnau, Robert, ed. (2009), *The Cambridge History of Medieval Philosophy*. Cambridge: Cambridge University Press.

Pasnau, Robert, ed. (2011), *Metaphysical Themes, 1274–1671*. Oxford: Oxford University Press.

Schliesser, Eric (2005), "Newtonian Emanation, Spinozism, Measurement and the Baconian Origins of the Laws of Nature", *Foundations of Science* 10: 1–19.

White, Carol Wayne (2008), *The Legacy of Anne Conway*. Albany: State University Press of New York.

Notes:

(*) Thanks to Alangoya Tezel for assistance with this chapter.

([1]) The full title of the book is *Principles of the Most Ancient and Modern Philosophy concerning God, Christ, and Creation, that is, concerning the Nature of Spirit and Matter, thanks to which all the Problems can be resolved which could not be resolved by Scholastic Philosophy nor by Modern Philosophy in general, whether Cartesian, Hobbesian, or Spinozian. A Short Posthumous Work translated from English into Latin, with annotations*

taken from the ancient philosophy of the Hebrews. References to this text (hereafter *Principles*) include book, section, and page number in Conway 1996 [1690].

([2]) For example, Leibniz thought very highly of Conway's philosophy. In his *New Essays on Human Understanding*, he mentions her as the "best" among the vitalist philosophers. See Leibniz 1923: VI.6, 71–3/Leibniz 1981: 72. For the range of significant figures with whom she corresponded and who referred to her approvingly as a philosopher, see Hutton and Nicholson 1992. For a thorough account of her intellectual circle, see Hutton 2009.

([3]) There is a new translation and edition of the *Principles* underway that includes references to a wide range of Conway's sources and so will contextualize the work more fully (see Conway forthcoming). For an edition that includes the Latin text, see Loptson 1998.

([4]) As Coudert explains, "The Kabbalah is the commonly used term for the mystical teachings of Judaism, especially those originating after the twelfth century. The word itself means 'that which is received' or 'tradition,' because it was thought to represent the esoteric, unwritten aspects of the divine revelation granted to Moses on Mount Sinai, while the Bible represented the exoteric, written part of the same revelation" (Conway 1996 [1690]: xviii). Kabbalist ideas were extremely popular in early modern Europe. On some of the complications concerning English views about the Kabbalah, see Hutton 2009.

([5]) Following the Kabbalists, Conway also refers to the second substance as "Adam Kadmon" (see Conway 1996 [1690]: 5.1–2, 23–4). Conway is quite explicit about her reliance on "the ancient hypothesis of the Hebrews" for her account of "the first-born son of God". For a discussion of the Platonist and Kabbalistic sources of this "dual logos" and for other citations, see Hutton 2009: 159–66.

([6]) In a monograph I am writing on Conway, I distinguish between the metaphysical and historic Christ, which I argue is key to understanding major parts of her system.

([7]) For a thorough discussion of the differences among scholastics on some of these central issues, see Pasnau 2009 and Pasnau 2011.

([8]) For example, Descartes writes to Mersenne as follows: "For I see that it [the Aristotelian philosophy] is so absolutely and so clearly destroyed by means of the establishment of my philosophy alone, that no other refutation is needed" (AT III.470).

([9]) For more on More's complicated relation to Descartes's philosophy, see Chapter 39 in this Handbook. My thanks to Jasper Reid for this citation. More was Conway's original unofficial tutor in philosophy. For insight into their relationship and rich philosophical exchange, see Hutton 2009: 39–111.

([10]) Leibniz 1923: VI.i, 489–90; VI.ii, 279–80. For more citations, see Mercer 2001: 27–49.

([11]) White (2008: ch. 3) is helpful on Conway's response to the mechanical philosophy, especially that of Descartes.

([12]) Philosophers in the second half of the seventeenth century use many different strategies to accommodate the “new physics”. For a discussion of some of those philosophers who turn to Aristotelianism for help, and for references to other work on this topic, see Mercer 2001: 114–19.

([13]) Platonist doctrines were interpreted in radically different ways in the fifteenth, sixteenth, and seventeenth centuries and early modern thinkers were happy to combine ideas from diverse sources. As scholars of early modern thought have long noted, early modern Platonism owes as much to the thought of Plotinus and Augustine as to Plato. See Kristeller 1979; Mercer 2001: ch. 5, 2012; Menn 1998.

([14]) The history of the causal theory of emanation is rich and complicated. For more on the views in early modern philosophy discussed here, see Mercer 2001: 178–95. In the seventeenth century, there were a number of different ways of accounting for emanation. For a helpful survey of these, see Schliesser 2005: 1–19.

([15]) My account of emanation owes a good deal to O’Neill 1993: 27–55.

([16]) On the relation between Leibniz’s and Conway’s views of sympathy and enhancement, see Mercer 2015.

([17]) Like his ancient predecessors, Democritus and Epicurus, Gassendi takes motion to be intrinsic to matter; but unlike them he thought God put motion into atoms. He writes: “It may be supposed that individual atoms received from God … the requisite force for moving, and for imparting motions to others … All this to the degree that he foresaw what would be necessary for every purpose he had destined them for.” See Gassendi 1658: Sect. I, Bk. III, 8 (Gassendi 1972: 400–1).

([18]) Leibniz 1923: II.i, 20. Leibniz and several of his German predecessors were very attentive to the passivity problem. See Mercer 2001: 178–95.

([19]) For an interesting account of some of Conway’s arguments, see Grey 2017. Grey calls Conway’s strategy here an “external objection” to Descartes’s system and argues that Descartes “would not feel the force of the objection from ‘dead matter’ because it relies on an assumption—about the nature of divine creation, in this case—that is simply not part of his philosophical system” (Grey 2017: 7). It is surely true that Descartes’s accounts of God and creation are fundamentally different from Conway’s. Her retort would be that Descartes’s account of God contradicts fundamental attributes of the divine nature.

([20]) As suggested in Section 2, Aquinas and other scholastics were also troubled by sameness in nature. For example, Aquinas writes explicitly about ontological sameness: “Therefore, if any agent whose power extends to various effects were to produce only one of them, its power would not be so completely actualized as by producing several. Now, by the fact that the active power is actualized, the effect receives the likeness of the

agent. Therefore the likeness of God would not be perfect in the universe if there were only one grade of being” (Aquinas 1975: II.45 [2]).

([21]) For a helpful account of how body plays a role in Conway’s account of creatures and their perceptions, see Lascano 2013.

Christia Mercer

Columbia University, New York

Leibniz and Descartes

Jean-Pascal Anfray

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Abstract and Keywords

This chapter examines Leibniz's complex relations to Descartes. These relations are deeply influenced by the evolution of the intellectual context from the beginning of the 1670s to the early eighteenth century. Beyond Leibniz's overall appraisal of Descartes's philosophy, there are three areas that stand out in which the discussion and criticism of Descartes's ideas played a decisive role in the development of Leibniz's thought: epistemology, natural philosophy, and philosophy of mind. There are three central issues at stake between the two philosophers: the nature and role of evidence, the use of final causes, and the Law of Continuity.

Keywords: Gottfried Wilhelm Leibniz, consciousness, continuity, Law of Continuity, evidence, final causes, force, motion, laws of motion

(p. 721) GOTTFRIED Wilhelm Leibniz (Leipzig, 1646–Hanover, 1716) never was a Cartesian. Among his contemporaries, Hobbes and Spinoza arguably exerted a deeper influence on his thought. And yet, he was deeply and constantly engaged in a critical dialogue and controversies with Descartes's philosophy and Cartesianism. How critical he was toward Descartes depends on one's point of view. By the end of the seventeenth century, French Cartesians tended to see him as an opponent. Thus in 1697 Pierre-Sylvain Régis complains that "it has been clear for a long time that Monsieur Leibniz wants to build his reputation on the ruins of that of Mr. Descartes" (GP IV.333). In reply, Leibniz pledges innocence and grants that, "far from wanting to ruin the reputation of this great man, I find that his true merit has not been acknowledged" (GP IV.337). He concludes with a metaphor he regularly associates with Descartes: "I usually say that Cartesian philosophy is like the antechamber of truth" (GP IV.337; see also Letter to Christian Philipp, December 1679, A II.1.767/L 272; and the Letter to Nicolas Rémond, 10 January 1714, GP III. 607/L 655). The metaphor is deliberately ambivalent: while acknowledging the importance of Descartes's views, Leibniz untiringly stresses either their deficiencies, as with his rules of method or his account of mind–body interaction; their indebtedness to predecessors, as in the case of the laws of optics and the principle of inertia; or their dangerous consequences in ethics and religion, as with the dismissal of final causes in physics.

In the following, I begin by sketching the general development of Leibniz's attitude with respect to Descartes (Section 1). I then highlight issues in three specific domains: method and epistemology (Section 2); natural philosophy, the nature of bodies, and their laws (Section 3); and the nature of mind and the problem of the souls of animals (Section 4).[1]

(p. 722) 1. The Development of Leibniz's Relation to Descartes's Philosophy

Leibniz was not acquainted with Descartes's works in his early years. In a letter to Foucher dated 1675, he admits that

> I have not yet been able to read all [Descartes's] writings with all the care I had intended to bring to them, and my friends know that, as it happened, I read almost all the new philosophers before reading him. Bacon and Gassendi were the first to fall into my hands … Yet what I know of Descartes's metaphysical and physical meditations is almost entirely derived from reading a number of books, written in a more familiar style, that report his opinions. (A II.1.388–9/AG 2–3)

The philosophical education Leibniz received in Leipzig, Altdorf, and Iena was dominated by a kind of eclectic Reformed Aristotelianism. This did not prevent him from reading some of the moderns (*moderni*), Bacon, Gassendi, and Hobbes in particular. In a letter to Jakob Thomasius, Descartes is cited as one of those *moderni*, alongside Patrizzi, Telesio, Galileo, Sennert, Digby, and some others (A II.1.24/L 94). But at the time, his knowledge of Descartes was almost entirely second-hand. In the same letter to Thomasius, he mentions a list of Cartesian commentators, some of whom he may have read: Clauberg, De Raey, Clerselier, Heereboord, Andreae, Regius (A II.1.25/L 95). Leibniz adds that, while he adheres to the mechanist program of explaining everything in terms of size, figure, and motion, he is nevertheless "anything but a Cartesian" (A II.1.24/L 94).

During his stay in Paris (1672–6), however, Leibniz was introduced to Cartesian circles. But even there, his knowledge of Descartes remained largely indirect until the last year of his stay, when he began to read Descartes's writings extensively and carefully, especially the *Principia*, on which he wrote a first set of critical remarks in 1675 (A VI.3.213–17). Moreover, through Clerselier, he had access to Descartes's manuscripts in 1676 and made excerpts from them.[2] Retrospectively, Leibniz stresses that his late reading of his works prevented his being subdued by Descartes's doctrines:

> I am unsure whether I was lucky to come late to the reading of this famous author (Descartes). I read him carefully only at a time when my mind was already filled with my own thought. Thus I believe I took advantage of his, without subduing myself to them. (ca. 1698, *Vorausedition* to A VI.5, N.2065)

However, after this initial reading phase, Leibniz's writings on Descartes are almost always critical. The reaction to Spinoza's philosophy played a decisive role. On his way (p. 723) from Paris to Hanover, Leibniz visited Spinoza in The Hague, where he discussed

his philosophy and also Descartes's. Although interpreting the role and influence of Spinoza's philosophy on Leibniz is a highly controversial matter, he clearly distanced himself from Spinoza's metaphysical views in 1678, after reading his *Opera posthuma*.[3] Thereafter, Leibniz constantly claims that Spinoza's philosophy is the logical consequence of some of the doctrines held by Descartes, or, as he puts it in a writing on Spinoza from the 1700s: "Spinoza begins where Descartes leaves off: in *naturalism*" (Leibniz 1854: 48/AG 277). 'Naturalism' designates any view that conceives of God as an infinite power, acting necessarily, without regard for independent values of truth and goodness.[4]

The insinuation that Descartes's philosophy results in naturalism appears in the late 1670s and remains remarkably stable over the following years, both in private papers and notes and in public writings and controversies. It forms the central thrust of a series of intertwined objections to Descartes, which are rehearsed with a remarkable constancy in several writings (Letter to ? 1679, A II.1.775–82/AG 240–5; Letter to Malebranche, A II.1.717–27/L 210; Letters to Christian Philipp, A II.1.786–9/L272–3; A VI.4.1389, 1475–8, 2045, 2051–2, 2064).

A good representative is a short piece written in the early to mid-1680s, entitled "De la philosophie cartésienne", where Leibniz lists a series of points on which he disagrees with Descartes (A VI.4.1479–88). The first three points relate to naturalism (A VI.4.1481–2): Descartes endorses the doctrine of the creation of the eternal truths (hereafter CET; see Sixth Replies, AT VII.431–3/CSM II.291–2; AT VII.435–6/CSM II.293–4). Second, he rejects final causes in physics (see *Principles of Philosophy* I.28, AT VIIIA.15–16/CSM I.202–3). Finally, his claim that matter successively takes on all possible forms entails that no possibility remains unrealized. In a word, "Descartes's God, or perfect being, is not a God like the one we imagine or hope for, that is a God, just and wise, doing everything possible for the good of creatures" (Letter to ?, 1679, A II.1.778/AG 242).

These three claims are deeply interconnected. CET entails that there is no objective standard of perfection and goodness. But if this is so, then God acts in a purely arbitrary manner, which amounts to the same as saying that the world stems from a blind causal power, excluding final causes. As Leibniz argues in a letter to Christian Philipp, dated January 1680:

> For what kind of a will […] is that which has not the Good as object or motive? What is more this God will not even have understanding. For if truth itself depends only on the will of God and not on the nature of things […] the understanding of God will be before the truth of things and consequently will not have truth for its object […] [C]onsequently it will be necessary to conceive God, after the manner of Spinoza, as a being who has neither understanding nor will […] But to say that such (p. 724) a God has made things, or to say that they have been produced by a blind necessity, the one, it seems to me, is as good as the other. (A II.1.788–9/Leibniz 1890: 4; see also DM, art. 2, A VI.4.1532–3)

Thus the denial of objective values entails the rejection of final causes and necessitarianism. The reverse entailment from necessitarianism to the denial of final causes holds as well.[5]

While CET and the exclusion of final causes in physics are well-documented doctrines in Descartes, the imputation of necessitarianism looks odder at first sight. Leibniz bases his reading on an almost single, isolated passage in *Principles* III.47, where Descartes claims that whatever the hypothesis concerning the initial state of the world, it would finally reach its actual state, since the world obeys laws of nature and "by the operation of these laws, matter must successively assume all the forms of which it is capable" (AT VIIIA.103/ CSM I.258). The exact meaning of this passage is controversial, but Leibniz took it as entailing the necessity of all changes in the material world, from which it is a short step to infer a generalized necessitarianism.

In addition, Leibniz charges Descartes with the ambition of founding a sect in which the Cartesians are mere followers. Leibniz finds signs of this ambition in the fact that Descartes either concealed or downplayed the discoveries made by his predecessors and contemporaries in order to appear as an innovator (A VI.4.1486). This is related to his objection that Descartes dismissed erudite knowledge and scholarship of the past, an attitude that fostered the kind of self-satisfied ignorance displayed by his followers. Similar attacks were fairly common by the end of the century and figure prominently in Pierre-Daniel Huet's repudiation of Descartes's philosophy in the *Censura philosophiae cartesianae* (1689).[6]

Leibniz's polemic with Descartes and the Cartesians reaches its climax in 1697, after Claude Nicaise had circulated among Cartesians a letter from Leibniz dated February 15, in which he restates his accusation that Descartes leads to Spinozism.[7] Leibniz concludes that "Spinoza only cultivated some seeds of Descartes's philosophy, so that it matters for the sake of religion of piety that this philosophy be castigated by subtracting the errors that are mixed with truth" (GP II.563). Régis took on Descartes's defense in the June issue of the *Journal des sçavans*. He claims that Descartes only meant that matter *could* (but would not) assume all possible forms. Moreover, Descartes had not rejected final causes altogether, but only their use in physics (where what is sought is not "why" (p. 725) things happen, but rather "how" they do happen), and still subscribed to them in moral philosophy (GP III.335–6). In reply, Leibniz defends himself from any bad intention and instead praises Descartes's genius and protests, somewhat disingenuously, that he had not intended to question Descartes's religious sincerity, but only to bring out the consequences of his doctrines. In particular, he argues that the passage from *Principles* III.47 entails not only necessitarianism but also eternal recurrence of the same events (GP IV. 340–1).

From the preceding, it might look as if Leibniz was unambiguously setting his philosophical views against Cartesianism in those years. Yet his attitude toward Descartes and Cartesianism is more complex, and he displays a more conciliatory attitude in some of his published writings from the very same period. This is best illustrated in the "Système

Nouveau", published in the July 1695 issue of the *Journal des sçavans*, which is the first published statement of Leibniz's own metaphysics. It is divided into two parts. The first part deals with the nature of substance, and in the account he presents substances are both principles of force and "true unities", conceived in analogy with the "I" or self and that confer substantiality upon aggregates (GP IV.483/WF 15). The second part deals with the "communication of substances", which covers the related problems of mind–body union and mind–body interaction. In both cases, Leibniz frames his views for a Cartesian audience.[8] First, he assumes that mind and body are really distinct substances, whereas a core thesis of the ontology of substance set forth in the first part of the essay is that bodies considered in isolation from a soul, or a "true unity", are only aggregates and not substances. Furthermore, he takes the mind, or the "I" or self, as a paradigm of indivisible unity, which would naturally invite Cartesian readers to interpret his real unities in terms of a *res cogitans* (GP IV.483–4/WF 15). Third, he avoids imputing to Descartes a definite solution to the problem of mind–body interaction: "As far as we can see from his writings, M. Descartes gave up the game at this point" (GP IV.483/WF 16). Finally, he emphasizes the extent of his agreement with the occasionalist account of mind–body interaction endorsed by most Cartesians, namely the rejection of a real influence between mind and body. Thus Leibniz sides with occasionalism in his rejection of the account of causal interaction between distinct substances in terms of physical influence, an account that he considers to be unintelligible. Occasionalism, by contrast, is intelligible, but it transforms any case of everyday (mind–body as well as body–body) causation into a kind of miracle. Though Leibniz in the end did not accept occasionalism, he nevertheless presented this view as a step toward his own account, the pre-established harmony of mind and body according to which "God first created the soul, or any other real unity, in such a way that everything in it arises from its own nature, with a perfect spontaneity as regards itself, and yet with a perfect conformity to things outside it" (GP IV.484/WF 16–17).

(p. 726) The turn of the century signals a change in Leibniz's relation to the philosophy of Descartes. This period corresponds to the decline of Cartesianism and to the rise of new philosophies, those of Locke and Newton in particular. Leibniz diagnoses a threat of materialism with Locke's hypothesis that matter suitably arranged might be endowed with the power of thinking and his skepticism with respect to the substantiality and immortality of the soul.[9] And he sees Newton's account of gravitation as an abandonment of the program of mechanical philosophy. Within this new outlook, Leibniz considers Descartes as an ally in his fight against materialism and the return to occult qualities (see *Antibarbarus physicus*, GP VII.337–9/AG 312–14). As one scholar aptly says, Leibniz is an inheritor of Descartes on the very project of a natural philosophy, whose aim is to give a view of the world grounded on an understanding of the nature of body and first causes. This sets him in sharp contrast with Newton, who continues the Galilean project of giving a quantitative description of the world instead of a causal explanation in terms of ultimate causes (Garber 2009: 179).

2. Method and Epistemology

Leibniz's most extensive examination of Descartes's philosophy is contained in the *Animadversiones in partem generalem D. Cartesii* ("Critical Thoughts on the General Part of Descartes's Principles"). The work must have been completed before mid-1692, when Leibniz gave a copy to Basnage de Beauval, in order that he circulate it among scholars in the Netherlands. He once envisaged the possible publication of this work as an appendix to a second edition of Huet's *Censura*. It turned out, however, that this second edition was published in 1694, while Basnage kept the manuscript with him until 1696, so only a very small number of people actually read it, including Huygens, Bayle, and Johann Bernoulli. These "critical observations on Descartes" (Letter to Huygens, 26 September 1696, GM II.146/L 416) provide the best entry to Leibniz's engagement with Descartes's epistemology, metaphysics, and natural philosophy.

Cartesian doubt requires not only the suspension of belief with respect to what is doubtful or merely probable, but also its rejection as false (*Meditations* I, AT VII.22/CSM II.15). Leibniz criticizes this on two counts. First, he raises an epistemological objection, namely that this precept is not only useless but can lead us to adopt new prejudices ("Critical Thoughts" I.2, GP IV.355–6/L 384). As an example, Leibniz considers Descartes's reasoning in *Principia* I.8, where, from the certainty of his existence as a thinking thing and his ignorance of the existence of bodies, he concludes that the soul is not a corporeal thing. This reasoning is invalid but its plausibility derives from Descartes's decision to treat what is unknown or doubtful as false ("Critical Thoughts" I.8, GP IV.357–8/L 387). Moreover Descartes's precept presupposes that judgment and other doxastic attitudes depend on the will. Leibniz claims on the contrary that our (p. 727) judgments depend on reasons presented by the understanding, on which the will does not exert any direct control ("Critical Thoughts" I.6, GP IV.354/L 384; I.31–5, GP IV.361–2/L 387–8).

Besides this, Leibniz is critical of the radical doubt more generally. Evidence can be relied on without needing God's warrant, so it is possible to attain certainty and knowledge in a particular field without knowing God, so that, *pace* Descartes, even an atheist may be a geometer. Conversely, the existence of God does not preclude our fallibility, due to the limitation of our minds. By contrast, once one adopts the general doubt strategy, the Cartesian circle is unavoidable ("Critical Thoughts" I.13, GP IV.358/L 385–6). Against the exclusion of merely probable knowledge (*Discourse on Method*, AT VI.31/CSM I.126–7), Leibniz claims that we should aim at maximizing the correspondence between the degree of assent and the weight of reasons, which requires the development of a theory of probability ("Critical Thoughts" I.1, GP IV.354/L 383–4; see also NE IV.xvi, 459–74 and IV.ii, 373).

Indeed, Leibniz admits the *cogito* as a first truth. But he downplays its importance by adding other "first truths" alongside it: the first truth of reason, i.e. the principle of contradiction, and several truths of fact:

> There are as many primary truths of fact as there are immediate perceptions or if I may say so, consciousnesses [*conscientiae*]. However, I am conscious not only of myself thinking but also of my thoughts, and it is no more true and certain that I think than that this or that is thought by me. Hence the primary truths of fact can conveniently be reduced to these two: "I think" and "Various things are thought by me". Whence it follows not only that I am, but that I am affected in various ways. ("Critical Thoughts" I.7, GP IV.357/L 385)[10]

Any primary truth of fact provides a ground on which it is possible to build further knowledge. Hence Descartes was mistaken in providing such a thin basis for our knowledge as the *cogito*.

More generally, the Cartesian method is flawed because Descartes had failed to find the genuine art of invention, or method (Letter to Elizabeth, 1678, A II.1.662/AG 236). Alternatively, he insinuates that Descartes actually found the method, but deliberately concealed it from his writings (A VI.4B.1484; GP IV.330; A II.2.535). Descartes's method, as embodied in the four precepts in the *Discourse on Method*, is both unnecessary and insufficient. The first rule, the so-called rule of evidence, according to which one should believe what one perceives clearly and distinctly, and the related general truth rule in Meditation Three that whatever is clearly and distinctly perceived is true (AT VII.35/CSM II. 24), receive most of Leibniz's attention. As he had remarked in his "Meditations on Knowledge, Truth, and Ideas", published in 1684, without a criterion of clearness and distinctness, Descartes's rule is useless, because one could be deceived by the illusory (p. 728) certainty of her belief and mistakenly perceive what is obscure and confused as clear and distinct (A VI.4.590/AG 26–7).

The a priori proof for God's existence provides a paradigmatic application of this objection to the evidence rule. According to Leibniz, Descartes's argument, though not invalid, is however incomplete. In one of his reconstructions, the argument runs like this (A VI. 4.590/AG 26–7):[11]

(1) Whatever is involved in the idea of X can be predicated of X or is a property of X.
(2) The idea of the most perfect being (i.e. God) involves all perfections, including existence.
(3) Therefore existence is a property of God (i.e. God exists).

Although Leibniz challenges the argument on different grounds, he accepts some kind of inference from a thing's essence to its existence. But, this granted, the argument remains inconclusive until one has proven that such an essence is possible. In the "Meditations" and elsewhere, Leibniz objects that Descartes is not entitled to assert (2) because nothing guarantees that our conception of what we mean by the name 'God' corresponds to a true idea, unless one establishes that the notion of a most perfect being does not contain a contradiction. Otherwise, it may turn out that the notions we combine to form the notion of a most perfect being are incompatible and express an impossibility, just as with the notion of a greatest number or a fastest motion:

> Similarly although I know what being is, and what it is to be the greatest and most perfect, nevertheless I do not yet know, for all that, whether there isn't a hidden contradiction in joining all that together, as there is, in fact, in the previously stated examples. In brief, I do not yet know, for all that, whether such a being is possible, for if it were not possible, there would be no idea of it. (Letter to Elizabeth, 1678, A II.1.664–5/AG 238)[12]

As a remedy to the limitations of Descartes's method, Leibniz relentlessly promotes the use of logic and the idea that the true method requires "arguments in form". This entails the rehabilitation of traditional logic, improved through his own various calculi and the finding of adequate symbolic expressions. The latter coincides with the project of developing a universal characteristic:

(p. 729)

> I maintain that, in order to reason with evidence in all subjects, we must hold some consistent formalism. There would be less eloquence, but more certainty. But in order to determine the formalism that would do no less in metaphysics, physics, and morals, than calculation does in mathematics, that would even give us degrees of probability when we can only reason probabilistically, I would have to relate here the thoughts I have on a new characteristic. (Letter to Elizabeth, 1678, A II.1.666/AG 239)[13]

Leibniz's views on method and knowledge are thus diametrically opposed to Descartes: to Descartes's view of knowledge as certain beliefs built upon the *cogito* alone, the rule of evidence and God's guarantee, he opposes an ideal of axiomatic knowledge, where some propositions are demonstrated from first truths or axioms, and, when no such demonstration is possible, propositions are known with a certain degree of probability.

3. The Essence of Bodies and the Laws of Nature

Leibniz's early views on body and its laws are complex, and their connection with Descartes, though critical on some points, does not become systematic until his own views are settled, sometime between 1676 and 1678.[14] In his 1669 letter to Thomasius, he holds that the essence of body consists in extension and impenetrability. But by 1671 he rejects this view and claims that its essence is motion (Letter to Arnauld, 1671, A II. 1.278/L 149). He is also critical of Descartes's account of the laws of nature. Thus in a first set of critical remarks on the *Principles of Philosophy* from late 1675 or early 1676, Leibniz rejects the conservation of the quantity of motion and substitutes a law of the conservation of *conatus*, which he had established in his *Theoria motus abstracti* of 1671. But although his own basic laws disagree with Descartes's laws, actual bodies satisfy the latter, given the hypothesis of a plenum (A VI.3.213–17).

A decisive step occurs in late 1676 when, reflecting on Huygens's pendulum experiments, Leibniz formulates the fundamental principle of the equipollence of full cause and entire effect (the "Equipollence Principle") and realizes that the Cartesian laws violate this principle (A VI.3.584; *De corporum concursu*, Leibniz 1994: 145–6). The discovery of this principle coincides with a revision of the laws of motion and a rejection of Descartes's account of body (A VI.4.1988/L 278–9).

Leibniz rejects the very metaphysical ground of Descartes's physics: his account of the essence of body as extension (see *Principles of Philosophy* II.4, AT VIIIA.42/CSM I.224). First, extension is a complex concept which, being resolvable into more primitive concepts (p. 730) (plurality, continuity, and coexistence), cannot be the essence of body ("Critical Thoughts" I.52, GP IV.364/L 390; "On Body and Force, Against the Cartesians", GP IV. 394/AG 251). Moreover, extension is a relative concept: it is necessarily the extension *of* some extended subject and for this reason it cannot constitute the essence of anything:

> The nature of body does not consist in extension alone; in unraveling the notion of extension, I noticed that it is relative to something, which must be spread out, and that it signifies a diffusion or repetition of a certain nature … Extension is not an absolute predicate, but it is relative to that which is extended or diffused, and therefore it cannot be separated from the nature of that which is diffused anymore than a number can be separated from that which is counted. ("On Body and Force, Against the Cartesians", GP IV.394/AG 251)[15]

Finally, Leibniz does not accept the Cartesian view of substance. In particular, he rejects the independence criterion of substancehood on the ground that there are no bare substrata, so that every substance depends on having some modification or other ("Critical Thoughts" I.51; GP IV.364/389–90; see Descartes, *Principles of Philosophy* I.51, AT VIIIA. 24/CSM I.210). He also rejects the identification of substance with its principal attribute, and the reduction of its essence to this principal attribute ("Critical Thoughts" I.52; GP IV. 364/L 390; Letter to De Volder, 31 December 1701, LDV 199; 20 June 1703, LDV 257; *Conversation between Philarète and Ariste*, GP VI.581–2/AG 258–60).

According to Leibniz, the essence of body consists not in extension, but in that which is diffused and constitutes extension. He identifies this with force, as it is defined within the new science of dynamics established in the early 1690s:

> But since on our view, there is something besides matter in body, one might ask, what its nature is. Therefore, we say that it can consist in nothing but the *dynamicon*, or the innate principle of change and persistence. (GP IV.394/AG 251)

Bodies, either the organic bodies of corporeal substances or mere aggregates, are endowed with derivative forces, which are the causes of motions studied in dynamics, or "that by which bodies actually act on one another or are acted upon by one another" ("A Specimen of Dynamics" [1695], GM VI.237/AG 120). Derivative active forces are either living forces (the force associated with a body in motion, its *impetus*) or dead forces (the forces associated with acceleration, such as the centrifugal force and the force of gravi-

ty). Derivative passive force is twofold: impenetrability or *antitypia* and *inertia* or resistance to motion. These forces are characterized as temporary modifications of the primitive forces or alternatively as the expression at the level of phenomena of the underlying monads' primitive forces (Letter to De Volder, 20 June 1703, LDV 263).

(p. 731) This metaphysical framework is connected to a series of claims directly opposed to Descartes's views of body and its laws. 1) Force, or the cause of motion, is internal to bodies. 2) Moreover, the laws of motion are grounded in these forces. Finally, 3) force, and not quantity of motion, is conserved in motion. The first two claims are immediate consequences of Leibniz's view of substance as a spontaneous source of action, and are in direct opposition to occasionalism, which is sometimes presented by Leibniz as the natural development of Descartes's thesis that extension is the essence of corporeal substance.[16]

Claim 3) constitutes Leibniz's central objection to the Cartesian account of the laws of nature. It is made public in the *Brevis demonstratio erroris memorabilis D. Cartesii* ("Brief Demonstration of a Memorable Error by Mr. Descartes") published in 1686 in the *Acta eruditorum*. This paper was eventually translated into French and published in 1687 in the *Nouvelles de la République des Lettres* and triggered Leibniz's first controversy with French Cartesians—the Abbé Catelan and Denis Papin in particular—later called the *vis viva* or "living forces" controversy, on the nature of force and its correct measure, a controversy that lasted until the middle of the eighteenth century.[17] Against Descartes, Leibniz argues that: (i) living force must be conserved in motion; (ii) force is distinct from quantity of motion, defined as size times speed (understood as a scalar quantity, i.e. $m|v|$); and (iii) the correct measure of force is given by the product of size times the square of velocity (mv^2).[18]

That force needs to be conserved derives from the Equipollence Principle together with the definition of living force through its consumption in the production of an effect (as the height to which a body set in horizontal motion can be raised). Descartes wrongly thought that force and quantity of motion coincide, and his conservation law is inferred from an erroneous generalization from what holds in the special case of simple machines—inclined planes, levers, and pulleys (A VI.4.2027/L 296). Leibniz first used an a posteriori argument to establish the distinction between living force and quantity of motion and the estimation of force as mv^2(DM, art. 17, A VI.4.1556–8; "Brief Demonstration", A VI. 4.2028–30/L 296–8; "Critical Thoughts" II.36, GP IV.370–2/L 394–5). If, as Descartes maintains, force were measured by size times speed, that would entail the possibility of perpetual motion and a violation of the Equipollence Principle ("Dynamics: On Power and the Laws of Corporeal Nature", GM VI.204/AG 106). This argument rests crucially on the assumption of Galileo's law of free fall, which states that the velocity acquired by a falling body is equal to the square root of the height of fall.

This assumption was an issue in the controversy with the Cartesians opened up by the publication of the "Brief Demonstration" in 1686. According to Leibniz's Cartesian opponents, the Abbé Catelan and Denis Papin, Galileo's law cannot be generalized, because

the behavior of heavy bodies depends on contingent features of our world, and (p. 732) in particular on the nature of the vortices surrounding the earth, which cause gravity.[19] Another objection was that Leibniz had neglected time in his estimation of force. But once time is taken into account, force is proportional to velocity, not the square of velocity. This eventually led Leibniz to devise an a priori demonstration, which does not rest on any contingent assumptions and configuration of bodies, but on the distinction between force and action, defined as "the exercise of forces through time" (GP II.154/LDV 29)—i.e. equal to the product of force by time. With the a priori demonstration, Leibniz thought he could directly derive the conservation of mv^2 from the Equipollence Principle.

Leibniz's criticism of Cartesian physics is not confined to the conservation principle, but extends to the collision rules and Descartes's account of impact (in Part Two of the *Principles of Philosophy*, AT VIII.A.62–70/CSM I.240–5). Descartes's third law has two parts: if body B collides with a stronger body C, it will rebound with its original speed (where a body's force is measured by its quantity of motion); but if B is stronger than C, it will set C in motion and the two bodies will move in the same direction with the same global quantity of motion as before the collision. One of Leibniz's arguments is that Descartes's law of impact would have outcomes in which an effect is greater or smaller than its cause, in clear violation of the Equipollence Principle (GP III.45–6).

There are deep connections between the Leibnizian conservation principle and the critique of Descartes's law of impact on the one hand, and the nature of bodies on the other hand. Huygens had indeed established in 1669 that in the impact of hard bodies, like two pendulums, the product of size and square of the speed are the same before and after the collision (Huygens 1669: 23). But if two inelastic bodies (e.g. soft balls) of equal mass moving in opposite directions collide, motion seems to be entirely lost after impact. In order to generalize Huygens's results and guarantee the conservation of absolute force, and not just of directional force (i.e. quantity of motion in a given direction), Leibniz assumed that all bodies are elastic to some degree.[20] The apparent loss of living force after the collision of soft bodies is thus due to the fact that it is taken up by their internal parts and becomes insensible (GP II.169/LDV 71).

The elasticity of all bodies is an essential assumption in Leibniz's physics and appears as early as the *Hypothesis Physica Nova* in 1671. It not only guarantees the conservation of absolute force, but in the late 1680s Leibniz also appeals to elasticity as a model for understanding collision without causal transfer. Elasticity ensures that "bodies … always gain their motion in collision from their very own force" (GP IV.397/AG 254; GP IV.486/AG 145; GM VI.240/AG 125; GM VI.251/AG 135; GP IV.515/AG 165). When two bodies collide, their own living forces are converted into an elastic force internal to each body, and when the body cannot be more deformed, this internal force is converted back into living force. Elasticity also entails that bodies are made up of (p. 733) smaller parts; hence the actual infinite division of matter and the rejection of atoms (GM VI.249/AG 132). Thus, in contrast with the Cartesians, Leibniz claims that there are no perfectly hard bodies, in the sense of bodies that cannot be deformed. Instead, all bodies have some degree of firmness and fluidity, which excludes Descartes's subtle matter as well as the second element,

on account of their perfect uniformity (A VI.4.1627/LC 323; A VI.4.1988/LC 233; NE 125–6; see Descartes, *Principles of Philosophy* III.52, AT VIIIA.105). The elasticity assumption is justified indirectly, as a necessary requirement in order for the Equipollence Principle and the Law of Continuity to hold (GP IV.399/AG 255).

By contrast, Descartes's law of impact and the seven collision rules specifying it entail violations of the Law of Continuity ("Critical Thoughts" II.40–4, GP IV.375/L 397; "A Specimen of Dynamics", GM VI.248/AG 131). According to this principle "no change happens through a leap". More precisely, it says that when the difference between two cases continuously diminishes, the difference between their outcomes should diminish correspondingly (GP III.52–3/L 351–2). To illustrate, let us consider Descartes's first two rules, which concern the case of two bodies B and C moving with equal speed in opposite directions on the same line. According to rule 1, when B and C are equal, each rebounds in the opposite direction with its original speed. But according to rule 2, when B is larger than C, only C is reflected and B continues its motion in the same direction, both with the same speed as before. Thus a very small difference in B's size will produce radically different outcomes, contradicting the Law of Continuity.

Laws of nature thus depend crucially on some metaphysical principles, the Equipollence Principle and the Law of Continuity. Leibniz calls these principles "architectonic" because they are contingent and depend on God's wisdom and choice of the best possible world. As a result, the laws of nature are not metaphysically necessary but contingent, and they require God's wisdom. For this reason, laws of nature ultimately depend on final causes:

> I have discovered … that the laws of motion which are actually found in nature, and are verified by experience … do not derive entirely from the principle of necessity, but from the principle of perfection and order; they are the effect of the choice and wisdom of God. (*Theodicy* III.345, GP VI.319)[21]

The principles of mechanics are themselves grounded in "more sublime principles, which show the wisdom of the Author in the order and perfection of his work" (*Tentamen Anagogicum*, GP VII.272/L 478). In turn, these laws of nature, as we have already said, need to be grounded in bodies, namely in their force, over and above extension and its modes, from which one may derive only necessary truths of geometry (DM art. 18, A VI.4.1558–9; "A Specimen of Dynamics", GM VI.242/AG 125).

(p. 734) 4. Mind, Apperception, and Animal Soul

According to Leibniz, Descartes's definition of thought entails that we must be always conscious of our thoughts (see Descartes, *Principles of Philosophy* I.9, AT VIIIA.7/CSM I. 195; see also AT VII.160/CSM II.113 and AT VII.246/CSM II.246). Conversely, whatever lacks self-consciousness fails to have thoughts, and since animals do not possess self-consciousness, they must lack souls. Leibniz denies both claims. He rejects the definition of thought as involving consciousness and defines perception instead as the "passing state that involves and represents a multitude in the unity or in the simple

substance” (“Monadology”, §14; GP VI.608/AG 214). This highlights a first difference with a Cartesian view of mind: for Leibniz, the mark of the mental is representationality, not consciousness. Consciousness, or apperception, is then defined as a kind of reflexive perception.[22]

Most importantly, whereas our soul is always thinking, apperception is not always present, thus making room for unconscious perceptions: “that is where the Cartesians have failed badly, since they took no account of the perceptions that we do not apperceive” (“Monadology”, §14; GP VI.608/AG 214; see also “Principles of Nature and Grace”, §4, GP VI.600/AG 208; GP III.307, 657). Unconscious perceptions or “*petites perceptions*” are entailed by the fact that the mind is essentially active and must be always thinking. These unconscious perceptions are characterized thus:

> At every moment there is in us an infinity of perceptions, unaccompanied by awareness or reflection; that is, of alterations in the soul itself, of which we are unaware because these impressions are either too minute and too numerous, or else too unvarying, so that they are not sufficiently distinctive on their own. But when they are combined with others they do nevertheless have their effect and make themselves felt, at least confusedly, within the whole. (NE, Preface, 54)

These unconscious perceptions provide the best account of a wide range of cognitive and motivational phenomena, such as the experience of the sound of the sea (which requires that we have insensible perceptions corresponding to the noise caused by each individual wave), selective attention, or our apparent indifference with respect to some choices. Another example is our emerging from a deep sleep. We would not be able to hear the alarm clock if we did not first have insensible perception of it (see NE, Preface, 54; “Monadology”, §23, 610/AG 216). The latter case rests on the use of the Law of Continuity, which thus provides an a priori justification for the existence of insensible perceptions (NE, Preface, 56–7). In virtue of this principle, our conscious perceptions must indeed come “by degrees from [perceptions] that are too minute to be noticed” (p. 735) (NE, Preface, 57; see also NE II.i.15–19, 116–18). By contrast, the Cartesian view of mind fails to satisfy the Law of Continuity, just as the Cartesian account of the laws of impact fails to do with respect to bodies.[23]

In addition, Leibniz attributes souls to animals. Until the late 1670s, when he rehabilitated substantial forms, Leibniz considers animals as mere machines (see for instance the Letter to Conring, 19/29 March 1678, A II.1.606/L 190). But in the late 1680s he begins to reject the Cartesian view and considers it to be highly probable that animals have souls (see *Discourse on Metaphysics*, art. 34, A VI.4.1583/AG 65, and Letter to Arnauld, 30 April 1687, A II.2.172/AG 87–8; see also AG 104 and GP IV.479/AG 139). However, his interest in the question of animal souls was steered by the article “Rorarius” in the first edition of Bayle’s *Dictionary* (1697), which contains both objections to the Cartesian thesis and a critical discussion of Leibniz’s own system. In opposition to Descartes, Leibniz assumes the impossibility of explaining any kind of perception at all, including sensation, on the basis of extended matter and its properties.[24] The reason is that perception is defined

either as the expression within a unity or as an internal action. From this it follows that it can only arise in a simple, active, and hence immaterial being (A II.1.860–1; GP VII.328–9/SLT 64–5; “Monadology”, §17, GP VI.609/AG 215). As a result, either animals are mere machines lacking perception, or else they have perceptions and hence must have souls. The fact of animal perception is then inferred by analogy with human perception, allowing the conclusion that animals have immaterial souls (GP VII.329/SLT 64).

But Leibniz also has a more direct argument, based on the premise that entelechies or active forces are necessarily endowed with perceptions. Since there must be such entelechies everywhere in matter, the argument concludes that there is perception everywhere in matter. This argument attributes perception far beyond the realm of animals, including all living beings. But even if animals have indestructible souls just as human beings do, they still differ insofar as animal souls lack rationality and deductive reasoning. Moreover Leibniz conjectures that while human souls remain self-conscious after death, as a requisite for their personal identity, when animals die, their souls lose any kind of conscious perceptions (GP VII.330–1/SLT 65). The debate over the Cartesian doctrine of the animal-machine involves a far more extensive disagreement about the entities populating the material world. Far from being merely *res extensae*, this world is full of enduring souls, always endowed with perceptions of the universe (Letter to Bernoulli, 7 January 1697, A III.7, 245). But most of these souls are “mere monads”, devoid of conscious perceptions. Only some of them, the animal souls, have sensations or conscious perceptions, and among the latter, only the rational minds or spirits are capable of rational thought and consciousness of the I or self (see GP VII.529–31, 535; “Monadology”, §19–29, AG 215–17).

(p. 736) 5. Conclusion

Three issues stand out from this discussion: evidence, final causes, and continuity. According to Leibniz, Descartes’s errors in his account of knowledge, metaphysics, natural philosophy, and philosophy of mind can be traced back either to his overconfidence in the value of evidence or to his failure to recognize the role of final causes and the Law of Continuity. This is why Descartes was only the Antechamber of truth for Leibniz.

References

Adams, Robert M. (1994), *Leibniz: Determinist, Theist, Idealist*. New York: Oxford University Press.

Antognazza, Maria Rosa (2009), *Leibniz: An Intellectual Biography*. Cambridge: Cambridge University Press.

Belaval, Yvon (1962), *Leibniz, critique de Descartes*. Paris: Gallimard.

Bouillier, Francisque (1868), *Histoire de la philosophie cartésienne*, 3rd edition, 2 vols. Paris: Delagrave.

Brown, Gregory (1984), “ ‘*Quod ostendendum susceperamus*’: What did Leibniz Undertake to Show in the *Brevis Demonstratio*?”, in Albert Heinekamp (ed.), *Leibniz’ Dynamica*. Stuttgart: Steiner, 122–37.

Catelan, François de (1686), “Courte Remarque de M. l’Abbé D.C.”, *Nouvelles de la République des Lettres* 8: 1000–5.

Cottingham, John (1978), “ ‘A Brute to the Brutes?’: Descartes’ Treatment of Animals”, *Philosophy* 53 (206): 551–9.

Cover, Jan A., and Donald P. Rutherford, eds. (2005), *Leibniz: Nature and Freedom*. Oxford: Oxford University Press.

Garber, Daniel (1995), “Leibniz: Physics and Philosophy”, in Nicholas Jolley (ed.), *The Cambridge Companion to Leibniz*. Cambridge: Cambridge University Press, 270–352.

Garber, Daniel (2009), *Leibniz: Body, Substance, Monad*. New York: Oxford University Press.

Griffin, Michael (2013), *Leibniz, God and Necessity*. Cambridge: Cambridge University Press.

Huet, Pierre-Daniel (1689), *Censura philosophiae cartesianae*. Paris: Daniel Horthemels.

Huygens, Christiaan (1669), “Règles du movement dans la rencontre des corps”, *Journal des Sçavans*, 18 mars 1669: 22–4.

Iltis, Carolyn (1971), “Leibniz and the Vis Viva Controversy”, *Isis* 62: 21–35.

Jorgensen, Larry M. (2009), “The Principle of Continuity and Leibniz’s Theory of Consciousness”, *Journal of the History of Philosophy* 47: 223–48.

Knobloch, Eberhard (2006), “Beyond Cartesian Limits: Leibniz’s Passage from Algebraic to ‘Transcendental’ Mathematics”, *Historia Mathematica* 33: 113–31.

Laerke, Mogens (2008), *Leibniz lecteur de Spinoza: La genèse d’une opposition complexe*. Paris: Champion.

Laerke, Mogens (2013), “Ignorantia inflat Leibniz, Huet, and the Critique of the Cartesian Spirit”, *Leibniz Review* 23: 13–42.

Laerke, Mogens (2015), *Les Lumières de Leibniz: Controverses avec Huet, Bayle, Regis et More*. Paris: Classiques Garnier.

(p. 737) Leibniz, Gottfried Wilhelm (1849–63), *Leibnizens Mathematische Schriften*, ed. C. I. Gerhardt, 7 vols. Berlin: Asher and Schmidt; reprint Hildesheim: G. Olms, 1971 [GM].

Leibniz, Gottfried Wilhelm (1854), *Réfutation inédite de Spinoza*, ed. Louis Alexandre Foucher de Careil. Paris: Ladrange.

Leibniz, Gottfried Wilhelm (1875–90), *Die Philosophischen Schriften von G. W. Leibniz*, ed. C. J. Gerhardt, 7 vols. Berlin: Weidemann; reprint Hildesheim: G. Olms, 1960 [GP].

Leibniz, Gottfried Wilhelm (1890), *The Philosophical Works of Leibniz*, ed. and trans. W. Duncan. New Haven: Yale University Press.

Leibniz, Gottfried Wilhelm (1923–), *Sämtliche Schriften und Briefe*. Darmstadt, Leipzig, and Berlin: Akademie der Wissenschaften [A]. Cited by series, volume and page number.

Leibniz, Gottfried Wilhelm (1952), *Theodicy*, trans. E. M. Huggard. New Haven: Yale University Press.

Leibniz, Gottfried Wilhelm (1969), *Philosophical Papers and Letters*, trans. and ed. Leroy E. Loemker. Dordrecht: D. Reidel [L].

Leibniz, Gottfried Wilhelm (1989), *Philosophical Essays*, trans. and ed. Roger Ariew and Daniel Garber. Indianapolis: Hackett [AG].

Leibniz, Gottfried Wilhelm (1994), *La réforme de la dynamique: De corporum concursu (1678) et autres textes inédits*, ed. M. Fichant. Paris: Vrin.

Leibniz, Gottfried Wilhelm (1996), *New Essays on the Human Understanding*, trans. Jonathan Bennett and Peter Remnant. Cambridge: Cambridge University Press [NE]. Cited by page number in A VI.6.

Leibniz, Gottfried Wilhelm (1997), *Leibniz's "New System" and Associated Contemporary Texts*, ed. and trans. R. S. Woolhouse and Richard Francks. Oxford: Oxford University Press [WF].

Leibniz, Gottfried Wilhelm (2001), *The Labyrinth of the Continuum: Writings on the Continuum Problem, 1672–1686*, trans. and ed. Richard Arthur. New Haven: Yale University Press [LC].

Leibniz, Gottfried Wilhelm (2006), *The Shorter Leibniz Texts: A Collection of New Translations*, trans. and ed. Lloyd Strickland. London: Continuum [SLT].

Leibniz, Gottfried Wilhelm (2013), *The Leibniz–De Volder Correspondence: With Selections from the Correspondence between Leibniz and Johann Bernoulli*, trans. and ed. Paul Lodge. New Haven: Yale University Press [LDV].

Locke, John (1975), *An Essay Concerning Human Understanding*, ed. P. H. Nidditch. Oxford: Clarendon.

Nadler, Steven M. (2011), "Consciousness Among the Cartesians", *Studia Leibnitiana* 43: 132–44.

Papin, Denis (1691), "Mechanicorum de viribus motricis sententia assertata a Dn. Papino adversus Cl. G. G. L.", *Acta eruditorum*: 183–8.

Papineau, David (1981), “The Vis Viva Controversy”, in R. S. Woolhouse (ed.), *Leibniz, Metaphysics and Philosophy of Science*. Oxford: Oxford University Press, 139–56.

Phemister, Pauline (2005), *Leibniz and the Natural World: Activity, Passivity and Corporeal Substances in Leibniz’s Philosophy*. Dordrecht: Springer.

Phemister, Pauline (2011), “Descartes and Leibniz”, in Brandon Look (ed.) (2011), *The Continuum Companion to Leibniz*. London: Continuum, 16–31.

Simmons, Alison (2001), “Changing the Cartesian Mind: Leibniz on Sensation, Representation and Consciousness”, *Philosophical Review* 110: 31–75.

Notes:

([1]) Belaval 1962 is the classic study on Leibniz and Descartes. For a more recent study, see Phemister 2011. Leibniz’s alleged Cartesianism is embodied in Victor Cousin’s claim that Leibniz was “three-quarters a Cartesian”. This was corrected by Bouillier, who saw Leibniz as both an opponent and a disciple of Descartes; see Bouillier 1868: II.405. Some important issues will not be covered in this chapter, mathematics in particular. On this, see Belaval 1962. For a more recent study, see Knobloch 2006.

([2]) On Leibniz’s encounter with Cartesians in Paris and his access to Descartes’s manuscripts, see Antognazza 2009: ch.3, especially p.167.

([3]) On the importance of this reading in the evolution of Leibniz’s relation to Spinoza and Descartes, see Laerke 2008: 558–850.

([4]) *Two Sects of Naturalists*, A VI.4.1385/AG 282. See Cover and Rutherford 2005: 5.

([5]) Leibniz’s early writings show a commitment to the view that everything happens necessarily as a consequence of God’s necessary goodness. See Letter to Wedderkopf, May 1671, A II.1.186–7/L 146–7. After 1676, however, Leibniz seems to think that final causes and objective values actually require genuine contingency, so that God’s necessary goodness no longer entails the world’s necessary existence. See in particular A VI.3.582; A VI. 4.1447/AG 20–1, and *Theodicy* §173. For commentary, see Adams 1994. Griffin (2013: ch. 3) holds the view that only blind necessity is incompatible with moral responsibility and final causes.

([6]) See in particular Huet 1689: 197–202. In connection with Leibniz, see Laerke 2013 and Laerke 2015: 313–22. See also A II.1.776–7/AG 241–5; A VI.4.2047–51, 2057–65; GP IV.337.

([7]) On this controversy, see Laerke 2013.

([8]) In the 26 August 1714 letter to Rémond, Leibniz is explicit that he uses distinct language in distinct journals: “In the Leipzig journal [*Acta Eruditorum*] I adapt myself to the

language of the schools, in the others I adapt myself more to the style of Cartesians" (GP III.624/WF 1, n. 3); see Phemister 2005: ch.1.

([9]) See Locke 1975: IV, vi, §3.

([10]) For an earlier statement of the same view, see the Letter to Foucher, 1675, A II.1.388/AG 2; GP IV.327; and NE IV.ii.1, 367.

([11]) See also *Quod ens perfectissimum existit*, A VI.3.578/L 167; Letter to Eckhard, 1677, A II.1.498–502/L 321–3; Letter to Elizabeth, 1678, A II.1.664–5/AG 238; GP IV.401–6; GP VII.490. For detailed analysis, see Adams 1994: part II and Griffin 2013. Leibniz's preferred version of the argument dispenses with the notion of perfect being, our idea of God, and the Cartesian predication principle that figures as premise (1) of our reconstruction, and infers directly from the possibility of a necessary being to its actual (and necessary) existence ("Critical Thoughts" I.14, GP IV.358–9/L 386).

([12]) See also A VI.3.462; Letter to Oldenburg, 28 December 1675, A II.1.393; and "Meditations on Knowledge", A VI.4.588/AG 25.

([13]) See also "Critical Thoughts" I.43–6, GP IV.363/L 389; I.75, GP IV.366/L 391.

([14]) For an overview of the metaphysical foundations of Leibniz's physics, see in particular Garber 1995 and 2009.

([15]) See also Letter to De Volder, 30 June 1704, LDV 305; *Conversation between Philarète and Ariste*, GP VI.584/AG 261.

([16]) Leibniz argues furthermore that occasionalism leads to Spinozism; see GP IV.508/AG 159–60; GP IV.515/AG 165; GP IV.396–7/AG 253–4; GP IV.567–8/L 583; GM VI.242/AG 125; *Theodicy* §393.

([17]) Catelan 1686; Papin 1691. On the controversy, see Iltis 1971; Papineau 1981.

([18]) See Brown 1984; Garber 1995, 2009: 144–55.

([19]) See Garber 1995: 313.

([20]) See GP III.56–7 and the Letter to Huygens, 26 September 1692, A II.2.581–2/L 415–16. On elasticity and its role in Leibniz's dynamics, see Garber 1995: 321–5.

([21]) For an English translation of the *Theodicy*, see Leibniz 1952. See also letter to Rémond, 22 June 1715, GP III.645.

([22]) For the role of reflection and an interpretation of apperception as a kind of higher order representation, see Simmons 2001. For a recent account of consciousness in Descartes and the Cartesians, see Nadler 2011.

([23]) See Jorgensen 2009.

([24]) Compare Descartes's letter to Mersenne, 11 June 1640 (AT III.85/CSMK 148) with his letter to Henry More, 5 February 1649 (AT V.276/CSMK 365). The view that Descartes ascribes at least feelings to animals is advocated by Cottingham 1978.

Jean-Pascal Anfray

École Normale Supérieure (Paris)

A *Cartésien Manqué*: Pierre Bayle and Cartesianism

Todd Ryan

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Abstract and Keywords

This chapter argues that despite his reputation as a sceptic, Bayle's thought is deeply influenced by the metaphysical systems of Descartes and Malebranche. In particular, Bayle shows great sympathy for a number of Cartesian positions, including the ontology of material substance, mind–body dualism, occasionalism, and mechanism. In each case, however, Bayle purports to find unresolvable conflicts between the Cartesian position and other intellectual commitments, including several of the fundamental tenets of Christian theism. The result is a kind of scepticism that might best be characterized as a scepticism of antinomy.

Keywords: Pierre Bayle, occasionalism, mind–body dualism, freedom, theodicy, scepticism

(p. 738) THE philosophical landscape of late seventeenth-century France, the world in which Pierre Bayle (1647–1706) operated, was dominated by Cartesianism. For Bayle, it was Descartes who, more than any other thinker, laid the foundations of modern physics while at the same time developing an account of mind and body that promised to place the fundamental truths of Christian theism on a new and more secure foundation. In Bayle's own time loomed the towering figure of Malebranche, whose audacious fusion of Cartesian and Augustinian philosophy was in Bayle's eyes the most coherent and powerful system of Christian theism yet devised. In what follows I shall examine Bayle's critical engagement with these two great figures of Cartesian philosophy. I shall argue that despite his reputation as a sceptic, Bayle's thought is deeply marked by the philosophical systems of Descartes and Malebranche. Not only does Bayle endorse many of the central tenets of Cartesianism, but even in his more critical encounters, when he challenges the Leibnizian theory of pre-established harmony or Spinozistic monism, Bayle's criticisms are generally undertaken from a recognizably Cartesian point of view.[1]

Bayle's interest in Cartesianism centers on a cluster of metaphysical theses: the ontology of substance, and in particular the analysis of matter as *res extensa*, mind–body dualism, occasionalism, and mechanism. By contrast, Bayle shows comparatively little interest in Cartesian epistemology. For example, Bayle has surprisingly little to say about

Descartes's method of doubt or his attempt to secure the veracity of clear and distinct perception. Likewise, Malebranche's signature epistemological thesis, the Vision in God, receives comparatively little attention from Bayle, who found the thesis (p. 739) "incomprehensible" and the arguments marshaled on its behalf unconvincing.[2] In what follows I shall examine Bayle's critical engagement with what he takes to be the central tenets of Cartesian metaphysics.

1. Matter as *Res Extensa*

Perhaps no element of Cartesian philosophy was more central to Bayle's thinking than Descartes's ontology of substance and the concomitant account of matter as *res extensa*. Briefly, Descartes maintains that each substance is possessed of a single feature, or principal attribute, which constitutes its whole essence and to which all of its other qualities are "referred". As is well known, Descartes maintains that thought and extension constitute the essence of mental and physical substance respectively. Furthermore, there is only a distinction of reason between an individual substance and its primary attribute in that "we cannot form a clear and distinct idea of the substance if we exclude the attribute in question" (*Principles of Philosophy* I.62, AT VIIIA.30/CSM I.214). Consequently, for Descartes, a body just is an extended thing. By contrast all other qualities of body, such as shape and motion, are mere ways of being extended. These further qualities of body, which Descartes terms "modes", are ontologically dependent upon extension in so far as they cannot exist apart from the extended substance to which they belong.[3]

From the time of his earliest writings, Bayle eagerly embraced these two fundamental tenets of Cartesian metaphysics. Bayle's lectures on philosophy, which were drafted during the mid- to late 1670s, show him defending the account of matter as extended substance. As proof of the Cartesian account of body, Bayle offers his students the following "triumphant argument":

> The essence of each thing consists in that which is conceived in it to be prior and which is of such a nature that if it is taken away, the thing is taken away, and if it remains, the thing remains. Now such is extension in relation to matter. Therefore, the essence of matter consists in extension. (*Cours* [*Systema totius philosophiae*], OD IV.278)

Furthermore, all of the other properties of matter, such as divisibility, impenetrability, shape, and mobility presuppose extension, which consequently is prior to them. Again, in one of his earliest published works, the *Dissertatio*, Bayle offers a vigorous defense (p. 740) of the Cartesian account of material substance on behalf of Rohault, Malebranche, and others against the objections of Louis de Valois (pseudonym, Louis de la Ville). Later, in his published works, Bayle continued to hold true to the Cartesian view:

> If there is any nature, the essential properties of which we know clearly, it is extension. We have a clear and distinct idea of it that makes us know that the essence of extension consists in the three dimensions and that the properties or

> inseparable attributes are divisibility, mobility and impenetrability … Let us search as much as we please in the recesses of the mind, we will not find there any idea of an immobile, indivisible and penetrable extension. (*Dictionnaire*, "Zeno of Elea" rem. I, 544/P 379)

For Bayle then, the identification of matter with actual extension is based on one of our clearest and most distinct ideas and serves as a paradigm of evident truths.

2. Immateriality of the Soul

Beyond the reconceptualization of material substance, perhaps the most significant achievement of Cartesianism in Bayle's eyes is its having placed our knowledge of the distinctness of mind and body on a new and firmer footing. In the wake of Descartes, Bayle can even go so far as to affirm that "nothing seems to me to be based on clearer and more distinct ideas than the immateriality of that which thinks" (*Dictionnaire*, "Jupiter" rem. G, 904/P 114). In his earliest works Bayle rehearses many of the standard Cartesian arguments for the distinctness of mind and body (*Cours*, OD IV.455–62). However, in his mature writings Bayle seems to follow Malebranche in holding that the immateriality of the soul can be proved only indirectly. According to Malebranche we have no clear and distinct idea of the soul comparable to that of extension. Rather, what direct knowledge we have of the soul is based on a kind of introspective conscious awareness, which Malebranche terms "inner sensation" [*sentiment intérieur*]. While inner sensation affords certain knowledge of the soul's existence, it can provide no knowledge of its essence.[4] Consequently, we can arrive at certain knowledge of the spirituality of the soul and its distinctness from body only by demonstrating that extension is the essence of matter and that thought cannot be a mode of extension (*Search After Truth*, Elucidation 11, OC III. 164–5). To this end, Malebranche argues that the only modes of which extended substance is capable are relations of distance, and that thought is categorically different from any such relation.

Bayle seems to have embraced Malebranche's claim that we have no idea of the soul. In his review of Malebranche's *Réponse de l'auteur de la Recherche de la Vérité au livre de M. Arnauld*, Bayle declares this claim to be the "best proved" thesis of the work (*Nouvelles de la République des Lettres*, April, 1684, art. 2, OD I.26). Accordingly, Bayle's (p. 741) general argumentative strategy with regard to the distinctness of mind and body is in keeping with Malebranche's position that the immateriality of the soul can be established only indirectly by appeal to our knowledge of matter as *res extensa*. Furthermore, Bayle consistently endorses the view that modes of thought are categorically different from such physical qualities as shape, size, and location. Nevertheless, to establish the remaining premise—that thought cannot be a mode of extended substance—Bayle takes a different approach.

The argument Bayle favors is that which, following Kant, has come to be known as the "Achilles". In a discussion of proofs of the immateriality of God, Bayle offers the following synoptic presentation of the argument:

> God must be an intelligent nature; everything composed of parts is incapable of intelligence; everything material is composed of parts; therefore, God must be immaterial (*Réponse aux questions d'un provincial* (hereafter *RQP*) III, ch. 15, OD III. 940)

Stated more fully, the Achilles begins with the assertion that we know by experience that the subject of thought is a single, unified center of consciousness. When attending a concert, it is one and the same subject that simultaneously sees the various motions of the players and hears the music they produce. Similarly, in perceiving a complex physical object such as a horse, it is one and the same subject that simultaneously perceives the various parts of the animal. What these considerations are meant to show is that there must be within us a single unified subject of thought capable of perceiving complex perceptions in their entirety. However, the argument continues, matter by its very nature is a composite entity, in so far as its essence is to be extended—that is, to have *partes extra partes*. Now every part of extension is itself a distinct, extended substance.[5] It follows, according to Bayle, that were the capacity of thought to reside in a body,

> no act of knowledge would result from this capacity; and at least it would be the case that these acts of knowing would be very different from those that we experience; for they make us know an entire object, an entire tree, an entire horse and so on, which is complete proof that the subject that is affected by the entire image of these objects is not at all divisible into several parts … (*Dictionnaire*, "Leucippus" rem. E, 101/P 130)

Were a complex representational thought to inhere in a composite material substance, such as the human brain or body, the thought would necessarily be divided into as many parts as there are component parts of the body.[6] Each of these parts would be (p. 742) aware of only that portion of the perception that belonged to it, with the result that no single subject would perceive the whole of the thought, contrary to what we experience in ourselves. Consequently, complex representational thought is not and cannot be a mode of material substance. Bayle goes on to run a similar line of argument with regard to bodily sensations, such as pains. From this Bayle concludes that thought as we experience it in ourselves must inhere in a simple, unextended, and therefore immaterial substance. It is important to notice that Bayle's formulation of the argument turns on the claim that matter is *essentially* extended. As Bayle makes clear, if, contrary to the Cartesian account of material substance, extension is taken to be merely an accident of matter, then the subject of inhesion would no longer be essentially complex, and the Achilles loses its force.[7]

However, while Bayle never questions the cogency of the Achilles, he concedes that the argument does not yield certain knowledge of the distinctness of mind and body. The problem seems not to be owing to any defect in the reasoning itself, which on at least one occasion Bayle goes so far as to characterize as a "geometrical demonstration". Rather, the problem is that the conclusion of the argument appears to conflict with other evident principles of reason.[8] Thus, having rehearsed a version of the Achilles to establish the immateriality of thinking substance, Bayle cautions that

> to enjoy perfect tranquility on this score, it would have to be the case that the consequences of this dogma did not conflict with some other truths to which we are committed. For if we cannot resolve these consequences, we will fall back into uncertainty. (*RQP* III, ch. 15, OD III.940)

Chief among these worries is the immaterial soul's relation to space. In response to the question of whether the human soul is located within the body, Bayle poses the following dilemma. If we answer in the negative, on the grounds that an immaterial soul is unextended and therefore exists nowhere, we assert a proposition that is at once incredible and incomprehensible, since it is an evident principle of reason that everything that exists occupies a determinate spatial location. If, on the other hand, the soul is said to exist within the confines of the body, then since everything that occupies a spatial location is extended, the soul itself must be extended. However, to be an extended substance just is to be a body, which contradicts the proof of its immateriality.

Furthermore, because the Achilles seeks to establish a general thesis that neither sensation nor representational thought can inhere in a material substance, the conclusion would appear to hold for animals as well as human beings. As a result, we are faced with the following dilemma: either animals have no souls and so are pure automata, or human beings are not unique in possessing an immaterial soul (*RQP* III, ch. 15, OD III.940). However, like Arnauld in the Fourth Objections, Bayle is deeply sceptical of the (p. 743) Cartesian claim that animal behavior can be given a satisfactory explanation in solely mechanistic terms. Thomas Lennon aptly refers to Bayle's challenge to the theory of animal automata as the "*a priori* implausibility argument" in so far as it seems to be little more than an expression of pure incredulousness that animal behavior can be fully explained without appeal to a conscious mind.[9] However that may be, the result once again is that the immateriality of the soul runs afoul of certain deeply held metaphysical and theological commitments.

3. Immortality of the Soul

As in the case of substance dualism, Bayle praises Cartesianism as having developed the most compelling philosophical arguments for the immortality of the soul yet devised. He writes:

> Only M. Descartes's system has laid solid foundations in this regard. He shows that everything that thinks is distinct from matter, whence it follows necessarily that our soul is a spirit, or a substance that is simple and indivisible, and consequently, immortal. (*Dictionnaire*, "Pomponace" rem. F, 780)

Yet despite the apparent evidence of the conclusion, Bayle goes on to observe that even the Cartesians must appeal to faith as the ultimate foundation of belief in immortality. For to be perfectly convinced by the argument one must be able to meet the objection that an immaterial substance, though naturally indestructible and therefore immortal, may nevertheless lose the power of thought. To illustrate the worry, Bayle draws an analogy with

life. Just as the matter of which a living organism is constituted may be naturally indestructible, and yet may lose the organization that makes it a living being, so too an immaterial substance might be indestructible and yet able to lose that by virtue of which it is capable of conscious thought. Consequently, to be fully assured of personal immortality,

> it is not enough to know that the soul *can be destroyed only by annihilation*. That is true of extension, and nevertheless trees and animals are mortal. Therefore, it would be necessary to say, *I know that the soul cannot subsist without thought; the distinct idea that I have of spiritual and indivisible substance informs me that if it were shorn of thought, it would no longer exist*. (*Dictionnaire*, "Pomponace" rem. F, 781; Bayle's emphasis)

In order to establish the doctrine of personal immortality, it is not enough to prove that the soul is immaterial and therefore immortal. It must also be shown that thought is not (p. 744) merely a mode, but rather an essential attribute of immaterial substance. The problem is that the Achilles argument can show no more than that the substance that thinks must be simple and therefore unextended. It cannot prove that thought must constitute its essence. Although Bayle does not explicitly mention Malebranche in this passage, it seems clear that the Oratorian is not far from his mind. Malebranche had maintained that despite having no clear and distinct idea of the nature of the soul, we can nevertheless prove not only its immateriality, but also its spirituality and immortality (*Search*, III.2.vii, OC II.453, and *Méditations chrétiennes*, OC X.105–6).[10] However, for Bayle, Malebranche's indirect argument for the immateriality of the soul is no more capable than the Achilles of demonstrating that the soul is an essentially thinking thing. As a consequence, it cannot rule out the possibility that thought or the power of thinking is merely a mode of immaterial substance.

Underlying Bayle's contention that we cannot demonstrate that thought is the essence of the soul, may also be a worry about the Cartesian notion of *res cogitans*. In at least one place, Bayle challenges what he takes to be the Cartesian position that the essence of mind consists in "thought in general" (*Objections to Poiret*, OD IV.149). Bayle suggests that whether this is taken to mean that the essence of the soul is a general thought or some particular thought, the view is ultimately incoherent.[11] According to Bayle every thought is an action of the mind, and so is of the wrong logical type to constitute its essence.[12]

4. Occasionalism

In Bayle's eyes, it is Malebranche's occasionalism that constitutes his most important contribution to philosophy. Although Malebranche was by no means alone among Cartesians in deploying an occasionalist theory of causation, there can be no doubt that it was largely under Malebranche's influence that Bayle came to embrace the view. In his lectures on physics, Bayle eagerly subscribed to the thesis that finite entities are never real efficient causes and that the only real efficient cause is God. During his years as editor of

the *Nouvelles de la République des Lettres*, Bayle defended occasionalism against the objections of Fontenelle.[13] Later he performed the same service against those of Leibniz.[14]

(p. 745) In recent years commentators have paid significant attention to Malebranche's "No Necessary Connection Argument", according to which one event is the cause of another only if there is a necessary connection between the occurrence of the first and that of the second.[15] Despite the importance of this argument in the history of philosophy, and in particular its subsequent influence on Hume, Bayle offers no clear version of this consideration. Instead, Bayle develops a pair of arguments, both of which have direct antecedents in Malebranche, although in each case Bayle's formulation of the argument reveals interesting differences. The first of these arguments turns on a claim about the epistemic conditions that any real cause must satisfy. In particular a real cause must have knowledge of its effect and of the means of producing it. This argument, sometimes referred to as the *Quod Nescis*, is present in Malebranche, although it is primarily employed to establish the limited thesis that finite minds cannot be real causes of either bodily motions or thoughts. In defense of the former claim, Malebranche asks

> how could we move our arm? To move it, it is necessary to have animal spirits, to send them through certain nerves toward certain muscles in order to inflate and contract them … but there is no man who knows what must be done to move one of his fingers by means of animal spirits. How, then, could men move their arms? (*Search* VI.2.iii, OC II.315/LO 449–50).

As stated, the argument turns on a notion of sighted agency according to which a voluntary action necessarily requires a conception of the effect that one wills to bring about. However, because finite minds lack a clear conception of the physiological processes involved in moving one's limbs, it is impossible that the will be a genuine cause of the motion of one's body. Indeed, since God alone possesses the requisite knowledge, "only God is able and knows how to move them".[16]

It is not altogether clear whether Malebranche views the *Quod Nescis* argument as a global consideration in favor of occasionalism or a more limited argument that aims only to establish the causal inefficacy of finite minds. At issue is whether the epistemic constraint imposed by the *Quod Nescis* is meant to be taken as a necessary condition that anything must satisfy in order to be a true cause. If the principle is understood generally, then given the Cartesian analysis of matter as unthinking, extended substance, it will follow trivially that bodies cannot be true causes. Although Malebranche generally restricts his application of the argument to the case of finite minds, there is at least one text in which he appears willing to extend the reasoning to bodies. Thus, in the *Conversations chrétiennes* Eraste argues that

> bodies do not even know the size and motion of those they encounter. It seems to me that there must be an intelligent being [*une intelligence*], and indeed a single (p. 746) intelligent being, who produces and regulates all of the motions of matter,

> since the communication of motions is always alike in like encounters. (*Conversations chrétiennes* I, OC IV.22)[17]

On this argument, bodies cannot be the true cause of motion, since they lack the requisite knowledge to produce the regular and uniform effects we observe whenever bodies collide. However, in later editions Malebranche suppressed the passage, leaving it unclear to what extent he was ultimately committed to the *Quod Nescis* principle as a general condition on causation. However that may be, Bayle shows no such reticence. He makes of the *Quod Nescis* his preferred argument in favor of occasionalism. According to Bayle, "it is evident to all those who think carefully about things that the true efficient cause of an effect must be aware of it, and must also know how to bring it about" (*RQP* II, ch. 140, OD III.787). For Bayle the inability of any finite creature, whether body or mind, to have knowledge of the means by which to produce a given effect is a global consideration in favor of their real causal inefficacy. In addition to this difference in scope, there is also a subtle shift in Bayle's version of the argument. In the case of bodies the lack of knowledge that Bayle tends to emphasize is their ignorance of the divinely established laws of communication of motion. As Bayle puts the point, "to establish laws of motion and to impart them to an insentient nature to be carried out, is all the same as to not make any laws at all, and to will that nothing move" (*Continuation des pensées diverses*, ch. 111, OD III.341).[18] Lacking both the knowledge of the particular laws of motion which God has decreed as well as the particular circumstances relevant to applying the law on any particular occasion, no body can be a real cause of motion either in itself or in another.

Similar considerations apply to the mind's presumed power to voluntarily raise ideas within itself. Lacking clear knowledge of the nature of ideas or of how to produce them, finite minds can be no more than occasional causes of the ideas they summon. Indeed, so convinced is Bayle of the cogency of this reasoning that he makes it a crucial premise in his defense of Descartes's Third Meditation proof of God's existence. Bayle writes:

> I am persuaded that just as God alone can move bodies, it is God alone who can communicate ideas to our soul. It is not the cause of them; it does not know how to arouse them … It has ones that it would like not to have … It is therefore God who communicates to us the idea we have of him. Therefore, he exists as a supremely perfect being, for if he were not such, he could not put it in us. (*RQP* II, ch. 101, OD III.342)

According to Bayle the inference from our idea of God to the existence of a supremely perfect being is "fundamentally" sound, since the human mind cannot be the cause of any of its ideas, and thus the cause of our idea of God can only be God himself!

(p. 747) Bayle's second argument for occasionalism, the Argument from Continuous Creation, is likewise based on a line of reasoning to be found in Malebranche.[19] According to Malebranche, the continued existence of finite substances is wholly dependent on God, such that not only were they first brought into existence by a divine act of creation *ex nihilo*, but their continued existence at each moment depends upon the continued operation of the numerically same act of creation. However, because the essence of body is to be ex-

tended, it follows that to create a body just is to create an extended thing. Now according to Malebranche, if God is to create an extended thing he must will not only that it exist, but that it exist in a determinate location. It follows that God is the cause of motion and rest in material substances: if he creates a given body in the same location over successive moments, the body is at rest. If he successively creates it in contiguous locations, it is in motion. Now because all other modes of bodies are nothing but changes of spatial relation, it follows that God is the real cause of every mode of material substance. In other words, if God is the sole cause of motion and if all other modes are solely the effect of motion, then God is the sole cause of all of the various modes of bodies. As Malebranche puts the point,

> it is God who does everything in all things. For since I know that all the changes that occur in bodies have no other principle than the different communications of motion that take place in both visible and invisible bodies, I see that it is God who does everything, since it is His will that causes, and His wisdom that regulates, all these communications. (*Search*, Elucid. 15, OC III.209/LO 660)

One important limitation of Malebranche's argument so construed, is that it is not at all obvious that it can be used to rule out real causal efficacy in the case of finite mental substances. For Malebranche concedes that we have no idea of the essence of the soul. Consequently, it is difficult to see how he could identify some feature of finite minds that could serve as the mental analog to motion—that is, a quality that is both a necessary property of all finite souls and is solely responsible for producing all other mental states.

One significant difference between Bayle's version of the Continuous Creation Argument and that of Malebranche, is that Bayle is specifically concerned with the possibility of real causal agency of created minds. Bayle initially develops his version of the argument within the context of a broader discussion of the problem of evil. At issue is whether Christian theists can absolve God of responsibility for moral and natural evil by appeal to human free will. Bayle imagines a proponent of Manichaeism arguing ad hominem against the Christian philosophers that the ascription of freedom of indifference to human beings and other intelligent creatures is inconsistent with the doctrine of continuous creation. Bayle imagines the defender of Manichaeism arguing as follows:

> according to the ideas we have of a created being, we cannot comprehend at all that it can be an originating source of action; that it can move itself; and that, while (p. 748) receiving its existence and that of its faculties every moment of its duration, while receiving it, I say, entirely from another cause, it should create in itself any modalities by virtue of something that belongs exclusively to itself. (*Dictionnaire*, "Paulicians" rem. F, 628/P 180)

Metaphysically speaking, a human volition is an accident of a mental substance or soul. Now according to Bayle either this accident is really distinct from the mental substance or it is not. If it is distinct, as the scholastics maintain, then it can only be brought about by an act of creation *ex nihilo*, which everyone agrees to be beyond the power of finite substances. If, on the other hand, the volition is not really distinct from the substance to

which it belongs—if, as the Cartesians maintain, it is a mere mode of thinking substance—then it can only be produced by the same cause that created the underlying substance. However, no finite substance can make a real causal contribution to its own creation. From this, Bayle concludes that the doctrine of continuous creation combined with the Cartesian account of modes as mere ways of being entails that no finite mental substance is a cause of its own states, and that therefore it is God alone who is the true cause of human volitions.[20] Indeed, because bodies, no less than finite mental substances, owe their continued existence at each moment to God's creative power, it follows that no finite substance—either mental or physical—can be a real efficient cause of its own states.

5. Occasionalism and Human Freedom

Although Bayle continued to endorse occasionalist arguments throughout his career, his attitude toward their ultimate acceptability underwent a significant evolution. Early on Bayle confidently asserted that the arguments for occasionalism "scarcely admit of reply". However, in later years his attitude was noticeably more circumspect. Thus, in the *Réponse aux questions d'un provincial* (*RQP*) Bayle declares that while the system of occasional causes is "subject to unfortunate drawbacks, nevertheless it seems to me that it is the only one that can be given" (*RQP* III, ch. 15, OD III.940b). The problem once again is not so much that Bayle has lost faith in the correctness of the arguments themselves. Rather, he has grown ever more pessimistic that the occasionalist system can be reconciled with fundamental moral and theological commitments. According to Bayle, all Christian theologians are committed to the view that freedom of indifference is necessary for human responsibility. However, he sees no clear way to avoid the conclusion that if the occasionalist thesis is correct, then human beings are not free in the morally relevant sense, with the result that it is God who is the author of sin.[21]

(p. 749) Bayle has two main worries about the implications of occasionalism and in particular the Argument from Continuous Creation for human freedom. The first worry is epistemological. Bayle insists that inner consciousness provides no sure evidence for human freedom of indifference. Recall that for Malebranche we have no clear and distinct idea of the essence of the soul. For this reason, he concedes that there can be no direct argument for human freedom based on the nature of the human soul. Nevertheless, Malebranche maintains that by virtue of the inner sensation we have of our volitions, we can know them to be free. According to Malebranche, "I have an inner sensation that I am not invincibly led to the love of particular goods. Therefore, I know that I have the freedom to love them or not to love them" (*Réponse aux Vraies et des fausses idées*, OC VI.163). Bayle challenges this line of argument in a debate with Isaac Jaquelot, who, following Malebranche, had appealed to inner consciousness as a proof of human freedom. In response Bayle draws a distinction between conscious awareness of our own existence and awareness of the cause of our existence. According to Bayle I have by inner consciousness infallible awareness of my own existence. However, I have no similar awareness of

the creative power of God by which I am sustained in existence at each moment. Bayle writes:

> Notice that we do not discern whether we exist through ourselves by the clear and precise sensation we have of our existence … We do not sense the creative action that conserves us … Let us also say that the clear and precise sensation that we have of our acts of will cannot make us discern whether we give them to ourselves, or whether we receive them from the same cause that gives us existence. (*RQP* II, ch. 140, OD III.785)

In other words, the lack of conscious awareness of a cause of my existence provides no evidence against my existential dependence on the sustaining power of God. One cannot object to the doctrine of continuous causation on the grounds that we are not aware of God's creative power acting on us from moment to moment. For as Malebranche himself had asserted, "God and His operations contain nothing sensible" (*Search*, Elucid. 15, OC III.229/LO 671). But if this is right, then to claim to know that my volitions are not caused, on the grounds that I am not aware by inner sense of any cause of my volitions, is misguided. For if as Bayle maintains God is the complete cause not only of my mind, but of all of its states, including its volitions, then we should not expect to be aware of this cause by inner sensation, since God's sustaining power is not sensible.

Of course, the problem that the Argument from Continuous Creation seems to pose for the prospect of free finite minds runs much deeper than a challenge to the claim to know that the mind is free on the basis of inner sensation. For the point of Bayle's version of the argument was precisely to show that such freedom is incompatible with our status as creatures. Now Malebranche, of course, had attempted to establish the compatibility of human freedom with occasionalism. To understand wherein human freedom lies, we must distinguish the movement toward the good in general or the general desire for happiness, from the movement toward particular objects conceived as goods. (p. 750) According to Malebranche, the former is impressed on our souls by God and as such is "invincible". For this reason our desire for happiness in general is not free. However, the same is not true of our desire for particular goods. For in this case the mind is able to "stop at" a particular good, rather than follow God's impression toward the good in general. It is precisely in our ability to either acquiesce in our desire for a particular good or to "continue on" in search of the general good that our freedom consists. Declining to mention Malebranche by name, Bayle observes that some philosophers maintain that "the motion that pushes one comes from outside oneself, but that, nonetheless, one can stop it and fix it upon a particular object". Bayle's dismissal is uncharacteristically blunt: "This is contradictory, since it does not require any less force to stop something moving than to move something at rest" (*Dictionnaire*, "Paulicians" rem. F, 628/P 180). For Bayle, consenting or acquiescing is a positive mental act and as such it requires a real cause as much as any other mental mode.[22] In Bayle's eyes, the attempt to exclude some modes of finite minds from the general thesis that God alone is a real cause is ad hoc and wholly unpersuasive.

6. Malebranche and Theodicy

It is fair to say that what unites all of Bayle's various philosophical explorations is his deep and abiding interest in questions of philosophical theology. More particularly, Bayle is keenly interested in the question of whether it is possible to formulate a fully satisfactory system of Christian theism. Regardless of the topic under dispute—the nature of mind and matter, the origin of the universe, causation and the laws of nature, free will—always just beneath the surface lies the question of whether the most philosophically defensible system is theistic. Thus, it is hardly surprising that Bayle should have shown a marked interest in what was undoubtedly one of the most innovative theodicies of the early modern period, Malebranche's General Laws theodicy.

Malebranche's approach to theodicy begins with a frank acknowledgment of the reality of evil and imperfection in the created world.[23] According to Malebranche although God wishes to create the best possible world, he must always act in a manner worthy of his infinite perfections. In particular, God's actions must always do justice to his infinite wisdom. Now it is the mark of a wise agent always to act so as to achieve his aims in the simplest, most uniform manner. As a result, God's infinite wisdom dictates that, in establishing the order of nature, he make exclusive use of general volitions—that is, volitions that establish universal, exceptionless laws of nature. Now for Malebranche, it is precisely the fact that the world is governed by general laws that is the chief source of natural evil. It is, for example, because the natural world is governed by simple, exceptionless laws of (p. 751) motion that infants are born with physical deformities.[24] It is for the same reason that rain falls on fallow land and that fruits are destroyed by frost before they have ripened. Nevertheless, God is not blameworthy for having created a world containing such evils, since he does not choose to produce them for their own sake. Rather, God is "obliged to act always in a way worthy of him, through simple, general, constant, and uniform means".[25] Of course, it is fully within God's power to prevent such evils by interrupting the general course of nature by means of a particular volition—that is, by willing to bring about a particular state of affairs in response to particular circumstances. Malebranche insists, however, that to have recourse to particular volitions would be to act in a disjointed and ad hoc manner that is wholly unworthy of God's infinite wisdom. For Malebranche, then, the perfection of creation must be judged along two distinct, and conflicting, axes: the intrinsic perfection of the effect and the worthiness or perfection of the means by which it is realized. Owing to the ineliminable conflict between these two criteria, the world most befitting God's supreme perfection will be the one that achieves the optimal balance between them. Although God wishes to create a more excellent world—one free of evil and imperfection—he is prevented from doing so out of respect for his infinite wisdom.

In his first published work, the *Pensées diverses sur la comète*, published just two years after the *Traité de la nature et de la grâce*, Bayle appealed to Malebranche's theodicy to explain the existence of evil in a world created by a supremely perfect being (*Pensées diverses*, ch. 234, OD III.141). Later, as editor of the *Nouvelles de la République des lettres*, Bayle published a flattering review of the 1684 edition of Malebranche's *Traité* (*Nouvelles*,

May, 1684, art. iv, OD I.49–51). Indeed, at one point Bayle even went so far as to say of Malebranche's theodicy that it is "the work of a superior genius and one of the greatest productions [*efforts*] of the human mind" (*RQP* II, ch. 151, OD III.812). Nevertheless, in his final works Bayle openly repudiated Malebranche's theodicy. Speaking of himself in the third person, he affirms that "M. Bayle was among those who believed that Father Malebranche had given a wonderful *dénouement*, but it is almost impossible to accept after having read the books of M. Arnauld against this system, and after having seriously considered the vast and immense idea of the supremely perfect being" (*RQP* II, ch. 155, OD III.825). Although Bayle offers a number of criticisms of Malebranche's theory, his principal complaints seem to be three. As Bayle himself indicates, each of the three objections is based on our conception of God as a supremely perfect being.

First, according to Bayle, a being who is truly omniscient possesses the ideas of an infinite number of possible worlds and of the infinite number of means by which they might be realized. Now Bayle finds it literally incredible that among this infinity of (p. 752) possible worlds from which God had to choose there was not one that could be brought about by equally simple laws and which nevertheless promised less suffering and misery to its inhabitants (*RQP* II, ch. 155, OD III.825–6). Second, although he does not develop the point fully, Bayle suggests that the claim that God must act by the simplest and most general means out of respect for his infinite wisdom effectively robs him of his free will (*RQP* II, ch. 151, OD III.813).[26] The suggestion seems to be that if God's nature requires him to choose to create that world that represents the optimal balance between the intrinsic excellence of the work and the simplicity of the ways by which it is brought about, and if God cannot act against his nature, then God is not free to choose any other world than the one he in fact does. Finally, and most importantly, Bayle maintains that the highest attribute possessed by a supremely perfect being is its infinite goodness. It is goodness that is the "principal character of the divine nature" and goodness that makes God worthy of our love (*RQP* II, ch. 151, OD III.812).[27] Consequently, if as Malebranche claims, there is an inescapable conflict between the excellence of the work and the simplicity of the means by which it can be achieved, God will always choose to act out of goodness to his creatures rather than out of love of his own wisdom. For Bayle, it is inconceivable that the supremely perfect being should "render his goodness and love of virtue inoperative" out of respect for his own infinite wisdom (*RQP* II, ch. 151, OD III.812–13).

7. Conclusion

Perhaps more than any other philosopher of the early modern period, interpreting Bayle has proved to be an extremely fraught undertaking. Nevertheless, it is fair to say that most commentators have assumed that ultimately Bayle must be read as some kind of sceptic. However, as I hope to have shown, if Bayle is to be numbered among the sceptical opponents of Cartesianism, his sceptical critique is of a wholly different nature than that of a Foucher or a Huet. For Bayle's engagement with Cartesianism was not undertaken with the aim of challenging the dogmatic pretense to knowledge. On the contrary, from the time of his earliest writings, Bayle showed great sympathy for many of the fundamen-

tal metaphysical positions of Cartesianism: the *res extensa* account of matter, substance dualism, occasionalism, and mechanism. Nor in Bayle's eyes are we lacking in compelling arguments for each of these theses. Rather, Bayle's scepticism arises out of a frank recognition of the apparent inconsistency of these positions with a number of other evident principles of reason. Again and again we are confronted with seemingly acceptable arguments for conclusions which cannot be fully reconciled with various other intellectual commitments. Indeed, Bayle is finally forced to admit that the same (p. 753) holds true even of the *res extensa* account of matter itself. For as Bayle is well aware, "mathematicians" such as Newton and Fatio claim to be able to demonstrate the existence of a vacuum. However, this contradicts our clear and distinct idea of extension which tells us that necessarily every extended being is impenetrable (*Dictionnaire*, "Leucippus" rem. G, 103/P 137–8). In this sense, Bayle's scepticism is perhaps best described as a scepticism of antinomy. Whether as a result of these apparent conflicts of reason Bayle is ultimately led to suspend judgment on these questions or even outright reject the Cartesian positions he had previously defended remains an open question for historians of philosophy.

References

Bayle, Pierre (1727–31), *Oeuvres Diverses de M. Pierre Bayle*, 4 vols. The Hague: Husson. [Abbreviated as "OD".]

Bayle, Pierre (1740), *Dictionnaire historique et critique*, 5th edition, 4 vols. Amsterdam, Leiden, The Hague, and Utrecht. [Abbreviated as "*Dictionnaire*".]

Bayle, Pierre (1991), *Historical and Critical Dictionary: Selections*, trans. Richard H. Popkin. Indianapolis: Hackett. [Abbreviated as "P".]

Downing, Lisa (2005), "Occasionalism and Strict Mechanism: Malebranche, Berkeley, Fontenelle", in C. Mercer and E. O'Neill (eds.), *Early Modern Philosophy: Mind, Matter, and Metaphysics*. Oxford: Oxford University Press, 206–30.

Garber, Daniel (1992), *Descartes' Metaphysical Physics*. Chicago and London: University of Chicago Press.

Labrousse, Elisabeth (1964), *Pierre Bayle*, Vol. 2: *Héterodoxie et rigourisme*. The Hague: Nijhoff.

Lee, Sukjae (2008), "Necessary Connections and Continuous Creation: Malebranche's Two Arguments for Occasionalism", *Journal of the History of Philosophy* 46: 539–65.

Lennon, Thomas (1993), "Mechanism as a Silly Mouse", in Steven Nadler (ed.), *Causation in Early Modern Philosophy*. University Park, PA: Pennsylvania State University Press, 179–95.

Malebranche, Nicolas (1958–84), *Oeuvres Complètes de Malebranche*, ed. André Robinet, 20 vols. Paris: Vrin. [Abbreviated as "OC".]

Malebranche, Nicolas (1980), *The Search after Truth*, trans. T. M. Lennon and P. J. Olscamp. Columbus: Ohio State University Press. [Abbreviated as “LO”.]

Moreau, Denis (2001), “Malebranche on Disorder and Physical Evil: Manichaeism or Philosophical Courage?”, in Elmar J. Kremer and Michael J. Latzer (eds.), *The Problem of Evil in Early Modern Philosophy*. Toronto: University of Toronto Press, 81–100.

Mori, Gianluca (1999), *Bayle Philosophe*. Paris: Honoré Champion.

Nadler, Steven (1994), “Choosing a Theodicy: The Leibniz-Malebranche-Arnauld Connection”, *Journal of the History of Ideas* 55: 573–89.

Nadler, Steven (1999), “Knowledge, Volitional Agency and Causation in Malebranche and Geulincx”, *British Journal for the History of Philosophy* 7: 263–74.

Nadler, Steven (2000), “Malebranche on Causation”, in Steven Nadler (ed.), *The Cambridge Companion to Malebranche*. Cambridge: Cambridge University Press, 112–38.

Normore, C. G. (2008), “Descartes and the Metaphysics of Extension”, in Janet Broughton and John Carriero (eds.), *A Companion to Descartes*. Malden, MA and Oxford: Blackwell, 271–87.

(p. 754) Pessin, Andrew (2000), “Does Continuous Creation Entail Occasionalism? Malebranche (and Descartes)”, *Canadian Journal of Philosophy* 30: 413–40.

Rutherford, Donald (2000), “Malebranche’s Theodicy”, in Steven Nadler (ed.), *The Cambridge Companion to Malebranche*. Cambridge: Cambridge University Press, 165–89.

Ryan, Todd (2009), *Pierre Bayle’s Cartesian Metaphysics*. New York: Routledge.

Schmaltz, Tad (1996), *Malebranche’s Theory of the Soul*. Oxford: Oxford University Press.

Schmaltz, Tad (2008), “Occasionalism and Mechanism: Fontenelle’s Objections to Malebranche”, *British Journal for the History of Philosophy* 16: 293–313.

Solère, Jean-Luc (2017), “Bayle and Panpsychism”, *Archiv für Geschichte der Philosophie* 99: 64–101.

Notes:

([1]) For more on Bayle’s criticisms of Leibniz and Spinoza, see Ryan 2009.

([2]) In a letter to J. Turner, Bayle confides, “as for the opinion of Malebranche that we see things in God, I am far from sharing it. I am convinced that the human soul is as capable of the modification we call idea as of the one that God impresses on it to make it perceive a separate idea. Father Malebranche could never explain how a separate idea could be the object of a soul of which it cannot be a modification” (Bayle to J. Turner, Mar. 15, 1697; cited in Labrousse 1964: 157).

([3]) For a discussion of Descartes's ontology of material substance, see Garber 1992 and Normore 2008.

([4]) "But if it is easy to know the existence of our soul, it is not so easy to know its essence and nature" (*Search After Truth* VI.2.vi, OC II.369/LO 480).

([5]) "Everything that is extended necessarily has parts, and everything that has parts is composite … since the parts do not subsist in one another" (*Dictionnaire*, "Spinoza", rem. N, 259/P 302).

([6]) Elsewhere, Bayle defends this premise in the specific case of volitions. He writes, "it is evident that if the thing that wills is extended, the act of will would be coextensive with it, that is to say, would exist in each of its parts, just as motion is coextensive with the moving body or exists in each of its parts" (*Thèses philosophiques* XI, OD IV.142).

([7]) For a more detailed reconstruction of Bayle's version of the Achilles, see Ryan 2009; Solère 2017.

([8]) Speaking of himself in the third person, Bayle asserts that "this thesis, *bodies are incapable of thinking*, appears sufficiently evident for M. Bayle to judge it to be certain. However, he does not believe it to be as evident as the proposition, *two and two make four*" (*RQP* IV, ch. 24, OD III.1071).

([9]) Lennon 1993: 186.

([10]) For a careful discussion of these claims, see Schmaltz 1996.

([11]) For further discussion of Bayle's objections, see Mori 1999: 59–60.

([12]) In the *Search After Truth*, Malebranche explains that when he claims that thought is the whole essence of the soul, he means not some particular thought, but "substantial thought, thought capable of all sorts of modification or thoughts" (III.1.i, OC I.381–2/LO 198). Malebranche acknowledges the difficulty of conceiving of substantial thought and seeks to clarify the notion by way of analogy with our idea of extension as the essence of body.

([13]) For a discussion of the debate between Malebranche and Fontenelle, see Schmaltz 2008; Downing 2005.

([14]) See Lennon 1993; Ryan 2009.

([15]) See Nadler 2000: 113–15.

([16]) For a detailed discussion of Malebranche's *Quod Nescis* argument in its historical context, see Nadler 1999.

([17]) Mori also calls attention to this passage. See Mori 1999: 94–5. Nadler 1999 points to a different passage from the *Conversations chrétiennes* as a possible application of the Quod Nescis argument to the case of body.

([18]) See OD IV.139–40.

([19]) For an excellent discussion of Malebranche's version of the Argument from Continuous Creation, see Pessin 2000 as well as Lee 2008.

([20]) For a fuller account of Bayle's version of the Argument from Continuous Creation, see Ryan 2009: 73–88.

([21]) "It cannot be denied even if one considers this system preferable to all others, that it is subject to many difficulties, of which it seems to me the principal one concerns the question of human freedom" (*RQP* II, ch. 182, OD III.892).

([22]) As Mori has emphasized, one of Bayle's earliest criticisms of occasionalism is based on the claim that sin is a positive act of mind and as such requires a real efficient cause. See Mori 1999: 83–4.

([23]) For a detailed discussion of Malebranche's theodicy, see Nadler 1994; Rutherford 2000; Moreau 2001.

([24]) According to Malebranche "order demands that the laws of nature by which God produces this infinite variety found in the world be very simple and small in number, as they in fact are, for this conduct bears the mark of an infinite wisdom. Now, the simplicity of these general laws produces in certain cases, due to the disposition of the subject, irregular kinds of motion, or rather, monstrous arrangements of them, and consequently, it is because God wills order that there are monsters" (*Search After Truth*, Elucidation 8, OC III.88–9/LO 589).

([25]) See *Méditations chrétiennes* VII, OC X.77 and *Traité de la Nature et de la grâce* I.43, OC V.49.

([26]) See *Dictionnaire*, "Berenger" rem. H, 527.

([27]) As Donald Rutherford rightly observes, for Malebranche it is primarily on account of God's supreme wisdom that he is worthy of our love and adoration (Rutherford 2000: 166).

Todd Ryan

Trinity College, Connecticut

The Condemnations of Cartesian Natural Philosophy Under Louis XIV (1661–91)

Sophie Roux

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The interdiction of the teaching of Descartes's natural philosophy pronounced by Louis XIV in 1671 was followed by a wave of official condemnations. The first part of this chapter gathers together the facts that led some historians to speak of the persecution of Cartesianism. In the second part, it is argued that various causes explain these condemnations, first by relativizing the importance of the doctrinal question of the Eucharist, second by placing the question in the context of the Jesuit wars, and third by showing that Cartesians appeared as a party threatening the unity of the kingdom.

Keywords: France, condemnations, Eucharist, Jesuits, Louis XIV

(p. 755) IN chapters both titled "De la persécution du cartésianisme", Victor Cousin and his disciple Francisque Bouillier compile the many official condemnations of Descartes's doctrine pronounced by the king, the universities, and the teaching orders in France in the last third of the seventeenth century.[1] These chapters are surrounded by a description of the influence that Descartes's works exerted on early modern thought and by an evocation of the mundane triumph of Cartesianism.[2] Such a juxtaposition is perplexing. Is it possible to go beyond the polarization between institutional censorship and an inescapable diffusion into new circles? Is there a relation between the condemnations of Cartesian philosophy and its success? What were the intellectual and social forces at work?

To answer these questions, I focus on the thirty years between 1661, the year when, immediately after Mazarin's death, Louis XIV declared that he would rule without a chief minister and wield alone an absolute monarchic power, and 1691, the year when the Parisian Faculty of the Arts was forced to reject a list of propositions of Cartesian and Jansenist origins. These thirty years were not a homogeneous period. The interdiction of the teaching of Descartes's philosophy pronounced by the king in 1671, followed by a wave of official condemnations, marked a first break. The breach in 1679 of the Clementine Peace triggered the publication of numerous polemical works. Still, the unity of these

thirty years is constituted by the fact that the Descartes who was admired, criticized, and condemned was the natural philosopher.

(p. 756) To make sense of the condemnations of Cartesian natural philosophy during these three decades, I begin by gathering the facts that have led to talk of the persecution of Cartesianism. In the second part, I argue that various causes were at stake in this censorship, first by relativizing the importance of the doctrinal question of the Eucharist, second by placing the question in the context of the Jesuit wars, and third by showing that Cartesians appeared as a party threatening the unity of the kingdom.

1. The Chain of Effects

1.1. The Early Condemnations in Louvain and Rome

The condemnations of Cartesianism pronounced in France were not the first.[3] After several pressing letters from the papal nuncio in Brussels, Girolamo de Vecchi, the Faculty of the Arts of the University of Louvain gathered on August 28, 1662, and “enjoined and ordered all its members, and in particular its professors of philosophy, to see that the unwary young people do not fill themselves with some dangerous theories that they read or hear by accident”. Noting, moreover, that “the writings of René Descartes are in the hands of many”, it warned that “although this author seems to have been successful in many things that concern the experiments of nature, many things that do not conform to the sane and ancestral doctrine of the said Faculty of Arts are found in [his writings]”.[4] On August 27, 1662, two days before the defense of medical theses by Theodore Aerts under the supervision of Pierre Dorlix, de Vecchi intervened once again and asked the Rector “to consult immediately theologians and other prudent persons, and, if there are some propositions infected by Descartes’s errors, to forbid totally the defense of the theses, or, at least, to order that the propositions that contain Descartes’s innovations be expurgated; or, still, to take care in a more gentle manner”.[5] The theses were defended, but on September 7, 1662 the Faculty of Theology censored five propositions in Descartes’s works: the definition of substance as that which does not need anything else to exist, or, at least, which does not need anything else created to exist, because “it implies that there are no other substantial forms than the rational soul, even in animals and plants”; the rejection of real accidents, because “it implies that the accidents of bread and wine do not remain without subject in the Eucharist”; and finally the three propositions that the extension of the body is the attribute that constitutes its essence and its nature, that the world has no limits, and that it is made of one and the (p. 757) same matter. In Dorlix’s theses themselves, the Faculty of Theology condemned several other propositions: corporeal modes explain the virtues of medicaments and the actions of bodies; the soul is better known than the body; without the Bible, there would be no proof that animals have souls; the soul is not in any part of the body; and it can be doubted if animals live.[6] The decree of the Faculty of the Arts was sent to Rome, where the Congregation of the Holy Roman and Universal Inquisition charged the Carmelite Giovani Agostino Tartaglia and the Somascan Stefano Spinula to censor Descartes’s most important works, which were

finally put on the Index of Prohibited Books *donec corrigantur* by a decree of November 20, 1663.[7]

It remains to be established how the condemnations of Louvain and Rome were disseminated in France. In his letter to Clerselier of January 27, 1664, Antoine Vinot mentioned the condemnation of Rome[8] and there is a brief allusion to the condemnation of Louvain in Rohault's *Entretiens de philosophie*. However, it seems that, in France, they were known mainly through the fourth edition of Vopiscus Fortunatus Plempius's *Fundamenta medicinae ad scholae acribologiam aptata* (1664).[9] It is through a review of the *Fundamenta medicinae* that the *Journal des sçavans* discovered them, while warning its readers that Plempius "treats very badly" Descartes;[10] in his *Commentaire ou Remarques sur la méthode de M. Descartes*, Nicolas Poisson also refers to Plempius, to cast doubt on the publication of the Roman condemnation and to note that there are "a thousand examples of condemnations pronounced rather out of revenge and by stubbornness than out of justice and by reason".[11] That these two condemnations, as formidable as they appear today, were known by hearsay can also be inferred from the fact that the Roman procedure was erroneously attributed to the machinations of the Jesuit Honoré Fabri.[12] In any case, the decrees of the Index could not be implemented in France without being approved by the Parlement, which was quite punctilious about the defense of Gallican liberties and which, on May 8, 1663, actually succeeded in imposing (p. 758) on the Faculty of Theology of the University of Paris six articles reasserting these liberties.[13] In view of these elements, it is reasonable to conclude that the censorship of Descartes's philosophy in France was not simply a consequence of the previous condemnations of Louvain and Rome. These latter condemnations were not always known about, and if they were, local circumstances were needed to actualize them.

1.2. Descartes, Desgabets, and Other Cartesians

The question of whether the Cartesian thesis according to which the essence of body is extension is compatible with the notion of transubstantiation and with the dogma of the Eucharist, played this actualizing role in the Paris condemnation of 1671.[14] The question was twofold. First, according to the decree of the Council of Trent of October 11, 1551, the species of wine and bread subsist when the host is changed into Jesus Christ; but, in Cartesian physics, all sensible qualities are appearances that necessarily result from certain figures and motions of the corporeal substance. How is it possible, then, to explain that we continue to perceive bread and wine once their substance has been changed into the substance of Jesus Christ? Second, according to the dogma of the Eucharist, the whole body of Jesus Christ is really, and not symbolically, present in every host; but, in Cartesian physics, the essence of the body is its local extension. Considering that something cannot be somewhere without its essence being there as well, how is it possible for the body of Jesus Christ to be really in the host while it is not extended in the host?

These two questions can be referred to as the physical question of the persistence of the accidents of the bread after transubstantiation and as the theological question of the presence of Jesus Christ in the Eucharist. Descartes distinguished them explicitly (AT IV.

374–5) and he provided answers to them. In response to Arnauld, he suggested in the Fourth Replies that if the sensible qualities of a body are determined by its surface, then the sensible qualities of the wine and the bread may very well remain while their internal corpuscles are supernaturally changed into the blood and body of Christ.[15] In his letter to Denis Mesland of February 9, 1645, he moreover suggested, with many precautions and with the injunction that this opinion should not be attributed to him, that the real presence of the Christ in the Eucharist can be accounted for by analogy with what happens when we eat and drink: just as corpuscles of food and drink become parts of my body because my soul is naturally united to my body, corpuscles of bread and wine become parts of the body of Jesus Christ because his soul is supernaturally united to these corpuscles (AT IV.165–70). A few years later, Descartes was more discreet: he refused to communicate anything in writing to Arnauld with the argument that the (p. 759) Council of Trent itself did not want to explain how Jesus Christ's body was in the host (Descartes to Arnauld, June 4, 1648, AT V.194).

While the Fourth Replies were entirely published in the second Latin edition of the *Meditations* (1642), Claude Clerselier did not include the letters to Mesland in the three volumes of Descartes's correspondence that he published in 1657, 1659, and 1667. The still extant manuscript copies of these letters show, however, that they were circulated.[16] In 1654, the very year when he received Descartes's correspondence from his stepfather Pierre Chanut, Clerselier discussed the Cartesian explanation of the presence of Jesus Christ in the Eucharist with a lawyer in Tours called Denis and with the Augustinian François Viogué, a doctor of theology who was at the time Chaplain at the French Embassy in Stockholm.[17] Around the same time, he communicated the letters to Mesland to the Benedictine Dom Robert Desgabets, possibly because he needed help answering the objections that a physician from the Auvergne province, Jean-Antoine Pastel, formulated against his answers to Viogué.[18]

By the end of the 1650s, having published the first two volumes of Descartes's correspondence, he thought that publishing the letters to Mesland would be his last task to complete the edition of Descartes's works (to Bertet, August 27, 1659, in Agostini 2009: II. 21). He thus communicated Descartes's explanations of the persistence of accidents and of the real presence of Jesus Christ to several theologians, among whom were the Jesuit Jean Bertet (who in turn communicated them to the Jesuits Honoré Fabri and François Malaval, who both censured them privately) and the Benedictine Antoine Vinot (who advised Clerselier to leave things as they were, because the Jesuits "would rather quit their cap and gown than reject the philosophy of Aristotle").[19] On March 1, 1664, Desgabets sent to Clerselier what he called a "jumble about the blessed Sacrament", actually an extract of his theology where he elaborated on Descartes's interpretation of the presence of Jesus Christ in the Eucharist. Desgabets discussed it with the Cardinal de Retz, who felt that "the thing was marvelously well thought and that it contained nothing contrary to the Faith of the Sacrament"; being however "very knowledgeable about the way in which new things are received in Rome", he advised "to hold back publishing this opinion because without doubt it would be immediately censored".[20]

Despite this prudent advice, another circle of theologians was soon consulted about the possibility of accounting for the real presence of Jesus Christ in the Eucharist while believing that the essence of matter is extension. But this time these were theologians who favored Descartes's philosophy: Nicolas Poisson was brought up to date in December 1667; Antoine Arnaud and Pierre Nicole were informed by the abbot Guillaume Le Roi at the end of the 1660s; an anonymous religious was prompted by Clerselier to write his objections, which he did in *L'incompatibilité de la philosophie de* (p. 760) *M. Descartes avec le mystère de l'Eucharistie*.[21] The upshot was not what was hoped for. In two detailed letters to Clerselier from December 15 and 22, 1667, Poisson spelled out why these new opinions were contrary to the Scriptures, to the Councils, and to all the Fathers of the Church.[22] Arnauld wrote that they were "contrary to everything that has been taught in the Church for six hundred years, and not only in the Catholic Church, but in all Christian communities".[23] Three years later, Nicole reproached Desgabets for fixing his philosophical principles first, and only then trying to adjust the dogmas of the faith to them, while one should rather learn "what Church and tradition teaches about this mystery and adhere to it inviolably without considering philosophical principles": whether we understand it or not, the Eucharist is the very body of Jesus Christ, not any body joined to his soul.[24] These were not ad hoc declarations, but long-standing positions. Already in 1664, Arnauld was consulted by Sébastien Joseph du Cambout de Pontchâteau about the writings of an English author. Having noted that his opinion on the Eucharist could not be received, Arnauld feared that "his condemnation could cause a backlash against principles of philosophy that seem very solid, and that can be allied with faith if one holds on to what was said in Descartes's metaphysics in the answer to the Fourth Objections". He ended by chastising this author for "worrying too much about adjusting our belief in mysteries that depend only on the omnipotence of God to the knowledge that we have of nature … while these are things of two wholly distinct orders that should not be mixed together".[25] The distinction between two orders was very much in agreement with Augustine's words that Arnauld kept quoting: "What we know, we owe to reason; what we believe, to authority."[26] More specifically, this amounts to making a sharp distinction between the question of the persistence of the accidents and the question of the presence of Jesus Christ in the Eucharist. While the first question was perfectly admissible and received a correct answer in the Fourth Objections, the (p. 761) second was not to be answered at a philosophical level because it is a mystery that cannot be grasped by reason.

Desgabets, who previously refused to sign the Formulary in which every member of the French clergy was supposed to condemn the five heretical propositions attributed to Jansenius in the Papal bull *Cum occasione* (1653), and who judged that Arnauld's and Nicole's *Logique ou l'art de penser* was "a masterpiece which gives a marvelous perspective on the most beautiful thoughts of M. Descartes",[27] was particularly affected by the low esteem in which they held Descartes's views and his own. In reaction, he wrote a small polemical leaflet of twelve pages, the *Considérations sur l'Estat présent de la controverse touchant le Tres-Saint Sacrement de l'Autel*. He presented the *Considérations* as ad hominem, since his intention was to show that Arnauld's and Nicole's disqualification of the new interpretation of the Eucharist was inconsistent with four theses that they de-

fended in their *Logique*: “1. The idea of matter … is the same as that of extension or quantity … 2. There are no substantial corporeal forms … 3. There are no corporeal forms other than the local disposition of the insensible parts of matter, 4 … There are no sensible qualities other than this local disposition of the parts of matter.”[28] If Arnauld and Nicole were consistent with themselves, they had no choice but to approve of the new explanation of real presence. Although Desgabets did not write this leaflet with the intention of seeing it in print, it was published anonymously in mid-1671 without his consent.[29] It was immediately presented to the king as “heretical and very pernicious” by his new confessor, the Jesuit Jean Ferrier; the king in turn sent it to the Archbishop in Paris, François de Harlay de Champvallon, who meanwhile got hold of a copy of Descartes’s letters to Mesland.[30]

Around the same time, in April 1671, one of the theologians of the Sorbonne, Guillaume de Lestoc, explained to Jacques Rohault, who was then identified as one of the chief Cartesians and who had just published his *Traité de physique*, that he admired him very much in mathematics but that he did not share his opinion or his physics. In June, Lestoc had the occasion to clarify that, two years before, a bachelor in theology defended the thesis that the conversion of the bread in the body of Christ is not inconsistent with Descartes’s hypothesis; that Poisson pretended that if a rabbit and a wolf carved in wood were put one in front of the other, the wolf would make the rabbit flee; and, finally, that the new philosophy did not admit the accidents of the scholastic philosophy (Rohault to Guyard, June 10, 1671, in Rohault 1978 [1671]: 170–8). This conversation led Rohault to write the *Entretiens de philosophie*, which, being finished at the beginning (p. 762) of August 1671, were to be submitted to Harlay de Champvallon (Rohault to Poisson, August 5, 1671, in Rohault 1978 [1671]: 169). Like Desgabets’s *Considerations*, Rohault’s *Entretiens* were not intended for publication. Still, they were published by Millet du Pertuis, with more than one guarantee of orthodoxy: a dedication to Louis II de Bourbon-Condé, a Privilege of the King dated from September 30, 1671, and the testimony that Christina, the former queen of Sweden, wrote in 1667 at the occasion of the reburial of Descartes to testify that Descartes was a perfect Catholic and that he contributed to her conversion (Rohault 1978 [1671]: 107, 155–6, 164). Contrary to Desgabets, however, Rohault did not tackle the question of the presence of Jesus Christ in the Eucharist, but only the question of how the qualities of bread and wine can still be perceived after transubstantiation. Following the Minim Emmanuel Maignan, he argued first that God, being able to dissolve the natural union that exists between the substances and the sensible qualities that they cause in our soul, can make us perceive the qualities of bread and wine while these have been transformed into the body and blood of Jesus Christ. Then he referred to Descartes’s suggestion in the Fourth Replies that if the qualities of bread and wine are still perceived once transubstantiation has taken place, it is because the surface stays the same (Rohault 1978 [1671]: 117–22, 128–30). Contrary to Desgabets, but like Arnauld before him, Rohault refused to use the letters to Mesland and stuck to the Fourth Replies.

1.3. The 1671 Decree and its Aftermath

The moderate line opened by Arnauld and Rohault was not enough to pacify their opponents. On August 4, 1671, Harlay de Champvallon summoned the rector of the University of Paris, the deans of the Faculties of Theology, Law, and Medicine, the procurators of the university's nations, and most of the headmasters of the colleges. Considering that some opinions that had formerly been censored by the Faculty of Theology and prohibited by the Parlement were being disseminated, he ordered in the name of the king the representatives of the university "to teach no other doctrine than the one brought forth by the rules and statutes of the university, and to put nothing else in the theses", and to do so to "prevent the diffusion of an opinion that could bring some confusion in our mysteries".[31] In different ways, all the bodies of the university submitted themselves to this order.[32] On August 7 and September 1, 1671, the Faculties of Medicine and Theology issued conclusions against the new opinions.[33] The Dean of the Faculty of Theology, Claude Morel, known for his violent anti-Jansenism, considered requesting the Parlement of Paris to side against the Cartesians by renewing the *Arrêt* of (p. 763) 1624.[34] Since there is no such request in the archives,[35] this step may never formally have been undertaken, possibly because it was known that the president of the Parlement, Guillaume de Lamoignon, would never follow it up.[36] Still, it gave Arnauld the occasion to write a serious memorandum where he exposed at length the danger and vanity of condemning any philosophy in the name of religion, while François Bernier and Nicolas Boileau circulated a satire of what a request to the Court of Parnassus against the introduction of new ideas in physics could have been, followed by the *Arrêt* in which this divine court prohibited blood from circulating in the human body, sent to the heart the injunction to be the principle of the nerves, and re-established into their rights entities, identities, petreities, and polycarpeities.[37]

More personal measures were also taken. In September, Harlay de Champvallon asked the *Procureur général* of the Congregation of Benedictines to summon and question Desgabets, who, a few months later, was forbidden to publish anything on theological matters and dismissed from his priory of Verdun.[38] By the end of December 1671 and at the very beginning of January 1672, Harlay de Champvallon himself met Clerselier and asked him and his son-in-law Rohault to refrain from publishing anything. While he authorized discussions of Descartes's opinions in private, he did not want them to be brought forth in public quarrels and disputes.[39] To be done with the matter, Harlay de Champvallon spread the good word throughout the country. According to a report from the Abbot of Vibo dated December 25, 1671, the order of the king was transmitted to all provincial parlements and all bishops were told that they should not let Descartes's views be taught in their dioceses.[40]

In a country as centralized as Louis XIV's France, a decree issued by the king and a condemnation delivered by the University of Paris were the occasion for local institutions to take revenge on the multiplying Cartesians. On October 10, 1673, the Faculty of Medicine of the University of Reims forbade the defense of Pierre Le Pescheur's bachelor thesis entitled *Do the eyes signify the whole man?*, which described the structure of the eye and explained how passions and diseases modify it, because "it swarmed with the doctrines of

the moderns, especially with Descartes's doctrine".[41] On June 11, 1675, the General Assembly of the Benedictines of St. Maur prohibited the teaching of "the new opinions of this time touching the essence and nature of bodies, that they identified with actual extension; the opinion of the accidents, that are not really distinguished from matter; and the others that might be connected to the dogmas of Faith".[42] On May 3, 1677, the Faculty of Theology of the University of Caen prohibited the teaching, orally or (p. 764) in writing, of the principles of Descartes's philosophy "because they seem to us contradictory with the sounder doctrine of the theologians", on pain of being refused access to any academic grade.[43] Those who studied in Caen under Pierre Cally, who in his *Institutio philosophia* (1674) defended the claim that the body is a thing extended in all three directions and that there are no absolute accidents, were indeed denied ordination; after being accused of spreading Descartes's doctrine and of favoring Jansenism and even Protestantism, Cally himself was finally removed from his chair and sent to Montdidier near Amiens in 1687.[44]

The persecution of the Oratorians is the most documented. On August 2, 1675, after several months of conflict in Angers between the rector of the university, Claude Voisin, who was supported by the king, and the Oratorian Faculty of Arts, which found an ephemeral and vain ally in the Parlement of Paris, the *Conseil d'État* explicitly forbade the teaching of Cartesian philosophy in any way or manner whatsoever and ordered the works, lecture notes, and theses of the Oratorians from Angers to be thoroughly examined.[45] Accordingly, an academic commission was tasked with taking a close look at the notebooks of Eugène Fromentier for the years 1672 and 1673, of Bernard Lamy for the years 1674 and 1675, of Cyprien de Villecroze and other professors for the years 1673, 1674, 1675, and 1676, and, later on, of Vincent Pelaud for 1676. By the end of 1675, the king forbade Lamy to preach and teach throughout his kingdom and sent him away to Saint-Martin de Miséré, near Grenoble; about two years later, Pelaud was also sent in exile to Brive-La-Gaillarde.[46] On March 4, 1675, Abel-Louis de Sainte-Marthe, the General of the Oratorians, sent to the superiors of all the colleges the order to abide by "the order of the king of January 20, 1675, which expressly forbids the teaching of Descartes's doctrine, which hereafter could cause some disorder in His Kingdom, which he wants to prevent for the good of His service and of the public".[47] Meanwhile, on March 29, 1677, it was ordered that "from now on, all our professors of philosophy would be obliged to choose a Thomist author approved and received in the universities".[48] At the end of 1677 and the beginning of 1678, the Oratorians Bonnet and Giraud were condemned—the first in Marseilles, the second in Toulon—for defending Baianist propositions in morals, while, because of his Cartesianism, Carryer, an Oratorian of Le Mans, was excluded, then reintegrated and exiled to Mâcon.[49] Much more significantly, the Oratorians declared on September 16, 1678, on the occasion of their sixteenth General Assembly, that "they do not embrace any party and do not have any opinion as a body or as a community, but they have always been and want always to stay free to be able to defend any good and sound doctrine, and they prohibit the teaching only of those doctrines which are condemned by the Church, or which could be suspected of Jansenius's and Baïus's (p. 765) views in theology and of Descartes's opinions in philosophy".[50] Moreover, they issued a decree explain-

ing what this declaration implied for the teaching of theology, of logic, of morals, and of physics. It was only in physics that they spelled out in some detail what should be taught and what not:

> In physics one should not depart from Aristotle's physics or principles of physics that are usually received in colleges in order to grow attached to the new doctrine of Monsieur Descartes, that the king forbade to teach for good reasons.
>
> One should teach: 1. That actual and external extension is not the essence of matter. 2. That in every natural body there is a substantial form really distinct from matter. 3. That there are real and absolute accidents that inhere in their subjects, that these accidents are really distinct from any substance, and that they can supernaturally exist without any subject. 4. That the soul is really present and united to the whole body and to all the parts of the body. 5. That thinking and knowing are not the essence of the rational soul. 6. That there is no contradiction that God can produce several worlds at the same time. 7. That the void is not impossible.[51]

The Genofevins followed suit immediately. The same year, they condemned Jansenism in theology and Cartesianism in philosophy.[52] On August 14, 1685, the Faculty of Arts, which, contrary to the superior faculties, had not taken sides in 1671, prohibited the teaching of "the new philosophy of the moderns, that is of Gassendi and Descartes".[53] While Gassendi was often associated with the new philosophers in the polemical works in the 1680s, this is, to my knowledge, the only mention of Gassendi in an official condemnation in this period. In 1691, Harlay de Champvallon, and soon after the king himself, were notified that eleven dangerous propositions were being taught in Parisian colleges.[54] Among these propositions, the first five were of Cartesian origin and the last six were taken from Jansenius. This was not without some tension, the former affirming the power of reason and the latter emphasizing the infirmity of sinful human nature.[55] On October 28, 1691, at the demand of the king, all the professors of the Faculty of Arts were summoned by their rector Renault Gentilhomme. After these eleven propositions were solemnly read, they had to sign a document certifying that they had never taught these propositions and would never teach them. In the case of the Cartesian propositions, the main issue was no longer natural philosophy, but the metaphysical doubt of the *Meditations*. There had already been some concerns about the Cartesian practice of doubting,[56] but it was the first time that it figured so prominently in a condemnation. This marked the end of the period when Descartes's natural philosophy was at the center of censorship in France.

(p. 766) 2. The Networks of Causes

The collections of condemnations on which the historians rely were compiled by people who, themselves involved in condemning the Cartesians of their time, gathered as many authorities as they could to establish that the Cartesian doctrine had been unanimously condemned.[57] In such collections, the condemnations are separated from their original context, so that they seem to engender one another: latter condemnations appear as applications of the 1671 royal decree, which itself appears as the consequence of the con-

demnations of Louvain and Rome almost ten years earlier. I have already suggested that the impact of the condemnations of Louvain and Rome on what happened in France is far from clear. In what follows, I will moreover argue that the French condemnations cannot be understood in isolation from a variety of causes and circumstances that intervened at different levels.

2.1. The Doctrinal Question: The Eucharist—and Other Questions

As we have seen, the question of the compatibility of Descartes's views of extension with propositions central to the Catholic faith is what sparked things off. Moreover, this question took up many pages in many books published in the period under consideration.[58] Still, there are several reasons for thinking that the reference to the doctrine of the Eucharist is not sufficient to explain the condemnations that took place in France.

First, orthodoxy, far from being fixed once and for all, is always subject to negotiation. A first possible compromise was rooted in the difference between the question of the permanence of the sensible qualities and the question of the presence of Jesus Christ in the host. Considering that only the latter involved Catholic dogma as such, Arnauld, Rohault, and later Bossuet suggested that only the answer to the first question should be considered as "Cartesian".[59] It is precisely because he did not think of the letters to Mesland as "Cartesian" that Arnauld could protest that "it is about thirty years since M. Descartes published his philosophy, and among other things his Metaphysics. The silence it [the Sorbonne] has kept since that time … shows sufficiently that it is only (p. 767) because of some secret desire for quarrel that now one wants to find in it things contrary to Faith, since there was none to be found for so long".[60] In this sense, a first compromise could have amounted to renouncing the letters to Mesland; as we have seen, this compromise was rejected, with Descartes's philosophy being taken *en bloc*. A second compromise could have consisted in a separation of the respective domains of faith and reason. In this compromise, reason should not be used to judge the mysteries of the faith, but, reciprocally, faith should not be used to decide matters of reason, so that one can, as a mere physicist, talk about things as they are in their natural state.[61] This compromise was refused as well, the adversaries of Descartes claiming that faith is the rule of truth.[62] Rather than taking orthodoxy as established once and for all, we need an explanation as to why these two compromises were not accepted.

Second, the question of the Eucharist, as important as it was, was not the only charge against Cartesian philosophy. Taking the Louvain condemnation as paradigmatic, one scholar has shown that the five propositions that were at stake were criticized and condemned again and again in France until the end of the century; but three of these propositions (that substance is what does not need anything else to exist, that the world extends indefinitely, and that there is only one world) have nothing to do with the Eucharist.[63] Similarly, the censures written by Tartaglia and Spinula that led to Descartes's works being put on the Index involved a variety of considerations, among which are the propositions that the Earth moves circularly and is one of the planets, that passions are not vital acts but only motions of the spirits, that the soul can acquire an ab-

solute empire on passions, and that there is no demonstration, no mathematics, and no philosophy for atheists.[64] Though they are not condemnations strictly speaking, two theses defended in June 1665 at the *collège de clermont* are worth mentioning here.[65] Indeed, they reveal which principles in Descartes's natural philosophy were difficult to accept for a Jesuit teacher: some arise from the identification of matter and extension, others from Descartes's definition of motion, and others still from the reduction of sensible qualities or of life to matter and motion. But it is only at the very end of the second thesis, and only in passing, that it is noted that a follower of Descartes cannot explain the conversion of the bread and wine into the body and blood of Jesus Christ.[66] What was revolting for the Jesuit professor who wrote these theses was not the incompatibility of Descartes's philosophy with the dogma of the Eucharist, but rather the paradoxes that it implies, a paradox being, true to etymology, what goes against received opinions.[67] The most remarkable example of the variety of condemned theses is to be found in the Angers affair. The problems associated with the Eucharist are indeed important in that case, but, among the condemned propositions, there were many that had no relation or a very tenuous relation to that: one should once in a life put everything in doubt; (p. 768) sensation has to be denied to beasts; the mind cannot be better defined than as a thinking substance; there is no force to act in the bodies themselves; pain is in the soul; we perceive things through their ideas; one should not trust the senses; we have innate ideas and images (*species*) of God and the angels; we do not need a Master to learn the sciences but only a Monitor who excites in us the ideas of all things that are innate in us; those who are outside a prince's territory are not bound by his law; virtue is nothing other than charity and love.[68] One cannot read such condemnations without having the feeling that all that an author—here Malebranche rather than Descartes—wrote was suspected and condemned in principle.

Last but not least, it is significant that Descartes's philosophy was also condemned in Protestant universities. In a Protestant university, the question of the compatibility of Cartesian philosophy with the dogma of the Eucharist was irrelevant. And yet Cartesian philosophy was condemned in Utrecht.[69] This shows that the problem that Cartesian philosophy posed to institutions was not limited to this question. Rather, an equally important reason for its condemnation was that it challenged authorities by introducing new doctrines. This dimension appears well in Babin's *Journal*, in which we see a professor deploring the dramatic degradation of education when the Angers affair began:

> The old and true doctrine was absolutely banished from the schools and the novelty and falsehood were with impunity established in their place. Young people were no longer taught anything else than to get rid of their childhood prejudices and to doubt all things, even if they are in the world … They were taught … that children think in the bellies of their mothers, that when they grow up they have less need of teachers … than of monitors … It was no longer fashionable to believe that fire is hot, that marble is hard, that animate bodies are sensible to pain: these truths were too ancient for those who loved novelty.
>
> (Babin 1679: 2)

If one wants to understand why the 1671 decree was locally implemented, one must take such testimonies into consideration. It was not only that there were more and more Cartesian teachers who were abandoning Aristotle's doctrine. It was also that Cartesians were teaching outside traditional institutions, calling into question the professional status of teachers. This was the case in Paris at Rohault's "Wednesdays", while in Toulouse, meetings of the *Lanternistes* took place under the leadership of M. de Nolet, in which François Bayle and Pierre-Sylvain Régis participated.[70] Cartesians and anti-Cartesians gave the same account of the audiences of these conferences, but had opposite judgments about their value. Clerselier praised Rohault for giving his lectures before "people of all stations and conditions, prelates, abbots, courtesans, doctors, physicians, philosophers, surveyors, regents, schoolboys, provincials, foreigners, artisans, in a word, people of all ages, sex and profession", while Jean Vincent, a doctrinaire from Toulouse, was horrified (p. 769) that the Cartesians "divulge this doctrine that in the schools is extended only to a few men, to all kind of people, young people and adults, men and women".[71] It was not only what Cartesians taught, but also how they taught it and to whom they taught it, that was threatening for the professors of the schools.

2.2. The Political Question: Jesuits and their Enemies

Jansenists and Cartesians were often associated in this period.[72] Some historians, starting with Bouillier, consequently tried to identify the doctrinal affinities between the two groups—in particular, the common reference to Augustine—to argue that the condemnations of Descartes's philosophy were only one episode in the long war between Jesuits and Jansenists in the second half of the seventeenth century. As regards the doctrinal affinities between Cartesians and Jansenists, however, it has been established that Arnauld may have been the exception rather than the rule.[73] Du Vaucel castigated him for having conceded to Jurieu in his *Apologie pour les catholiques* (1681) that the Messieurs de Port-Royal were Cartesians. In fact, Du Vaucel argued, "many of them are against Descartes, others are indifferent in that respect, he [Arnauld] is the only one with Nicole who can be called Cartesian".[74] But even this was already too much in the case of Nicole. When he received the *Traité des vraies et des fausses idées*, Nicole complained that Arnauld "demonstrates everywhere a tender love for Descartes, who does not lack in faults".[75] For Nicole, Descartes's philosophy was indeed better than any other philosophy; still it was only a human doctrine. In a letter of 1664 to Dom Joseph Hemassel, who was prior of Verdun when Desgabets was professor of philosophy there, he warned that Cartesians took philosophy too seriously:

> The most solid Philosophy is only a human science … However much we praise the philosophy of Monsieur Descartes, we must nevertheless recognize that what is most real about it is that it makes us understand that all the people who spent their lives philosophizing about nature, talked to the world and to themselves only about dreams and chimeras … Descartes is undoubtedly more reasonable than the others: but this quality should not induce us to make an open profession of it … In

> fact Cartesians are not better than the others, and are often more proud and more self-important.
>
> (Nicole 1718: I.430, 444)

(p. 770) Similarly, Louis-Isaac Le Maistre de Saci explained that “with regards to Aristotle, M. Descartes was like a thief who came to kill another thief and to take away his remains … Aristotle having usurped such an authority in the Church, was it not just that he was overthrown and dispossessed by another tyrant, to whom the same will perhaps happen?” De Saci reproached Descartes for having destroyed the admiration of God derived from the contemplation of nature by pretending to give reason for everything.[76] In a word, except for Arnauld, the high-profile Jansenists were ready to concede that Descartes was better than Aristotle, but still, he was nothing compared to the word of God.

Does this mean that the condemnations of Cartesianism had nothing to do with the all-out war that the Jesuits declared on Jansenists? Certainly not. But we should not focus so much on doctrinal issues rather than on the power games that the Jesuits were playing. Many testimonies suggest that the determination of the Jesuits to destroy everything that was contrary to them, or in any case everything that was independent from them, played an important role in the condemnations of Cartesianism. Not surprisingly, this was insinuated by Arnauld in the memorandum he wrote against the intervention of the Parlement in 1671 (Arnauld 1866 [1671]: 303–4). The condemnation of the Oratorians in 1678 was particularly impressive. Madame de Sévigné commented to Bussy Rabutin that “the Jesuits are more powerful and more enraged than ever. They prohibit the fathers of the Oratory from teaching Descartes’s philosophy, and consequently that the blood circulates. They again rekindled the five propositions; it was compulsory to promise and disavow what they wanted; the threat of letters of cachet is a powerful argument for making a doctrine persuasive” (October 12, 1678, in Sévigné 1853: III.433). The Oratorian Pasquier Quesnel suggested that the Jesuits focused on Angers because the nearby Jesuit college of La Flèche was losing its pupils.[77] Similarly, Pierre between,” and “Bayle” Bayle claimed that the Jesuits were furious “either because they feared that the colleges of philosophy where the Oratorians were regents could attract all the youth, who find the new philosophy a hundred times more tasty than the old, or because they feared that Descartes’s principles would cause a breach in religion”. In case his opinion was not clear, Bayle immediately added: “There were apparently both of these elements in their fear, but much more the first than the second” (Bayle 1684: Avis au lecteur, n.p.).

According to such testimonies, when the Oratorians had to submit in 1678, it was neither Descartes’s philosophy nor Jansenius’s theology that was at stake, but the fact that the Jesuits saw Oratorians as rivals in the education market. Certainly, we should not take these testimonies at face value. Arnauld and Quesnel were avowed Jansenists, while Madame de Sévigné and Bayle were sympathizers of Port-Royal; after several years of Jansenist persecutions, they were ready to see signs of Jesuit malice everywhere. But these testimonies certainly capture something of the rivalry between religious orders. Still, they are not sufficient to explain the decision of the king, who, even if he had Jesuit

confessors, had reasons of his own when he issued the 1671 decree. To understand these (p. 771) reasons, one should come back to the manner in which, on Christmas Eve, Harlay de Champvallon exposed the motivations of the king:

> His Majesty, having appeased the last troubles which arose between theologians on difficult and thorny questions, and having thereby brought peace and tranquility to his state, desired to preserve it and to prevent such a debate from taking place again among the learned, which … could later cause divisions and disorders in his kingdom … As the philosophy of M. Descartes seemed to alarm the learned and to throw the seeds of a division which could in the end catch fire, if it were not provided early … he [Harlay de Champvallon] … had orders to tell me [Clerselier] that we [Clerselier and Rohault] had from now on to restrain ourselves from doing anything that could break out and incite against us those of the opposite party …

The following clarification was added a week later:

> Since he [the king] does not condemn in substance this way of philosophizing, which he sees to be approved by so many clever people, the only thing he apprehends … is the altercation between the learned, whom he has ordered to be prevented with all his power. So that, provided that no quarrel or dispute arises in the public, he accepts that a private individual may try to discover the truth by this way, if it is possible, and that the Cartesians make every effort in that direction. He does not intervene so that peace might prejudice truth, but he does not want it to happen that, under the pretext of defending or seeking the truth, which one is not certain of finding, one disturbs the peace …[78]

Two aspects of Clerselier's account are worth commenting on. First, the king did not fear Descartes's philosophy as such, and not even Cartesian philosophy in so far as it was seen to be incompatible with the dogma of the Eucharist, but rather its public defense. Working privately on transubstantiation in the framework of Descartes's philosophy was allowed, but it was not permitted to make such work public. This distinction was to re-emerge just after the sixteenth General Assembly of the Oratorians. In September 1678, their general Sainte-Marthe sent François-Ignace de Baglion de Saillant, who besides his function as General Prosecutor was close to Harlay de Champvallon, to report to the king what happened. Louis XIV read the declaration that the Oratorians issued and commented that he prohibited Descartes's philosophy "for very good reasons. Not that I want to prevent it to be taught as it is taught to Monseigneur, but I do not want us to make it the foundation of doctrine" (Lallemand 1888: 408). Indeed, the teachers of the Dauphin that were appointed under the guidance of Bossuet included Géraud (p. 772) de Cordemoy and Jean-Baptiste Denis, who were acknowledged Cartesians.[79] What exactly Louis XIV was prohibiting depends on the meaning of the expression 'foundation of doctrine': if 'doctrine' refers specifically to the Catholic doctrine, he is asserting that Descartes's philosophy is not appropriate for grounding Catholic doctrine, probably with the issue of transubstantiation in mind; however, if 'doctrine' means 'established knowledge' in general,

he is saying that he does not want this philosophy to be taught in colleges and universities. In either case, the problem with Cartesian philosophy was its eventual publicity.

Second, if Descartes's philosophy was to be kept private, it was because its public defense could create disorders and divisions in France. More precisely, it was feared that it could contribute to disturbing the recent Clementine Peace that put an end to the persecution of Jansenism for ten years (1668–79). The Peace stipulated in practice that the members of the French clergy, when signing the Formulary that listed the five propositions condemned as heretical in 1653, could add the precision that they were de facto not in Jansenius's *Augustinus*; and it seems that the Jesuits received from their General the order to keep an "inviolable silence" on Jansenius's followers. A symbolic event in this regard was the appointment, in September 1671, of Simon Arnauld de Pomponne as Minister of State; the king went as far as to give an audience to his father Robert Arnauld d'Andilly, marking in the eyes of all the goodwill of the king toward the Jansenists.[80]

If we consider the Jesuits' desire to bring down all that could diminish their power, and the desire of Louis XIV to preserve peace, we begin to have a fairly clear idea of the situation. Publicly defending theories on transubstantiation inspired by Descartes amounted to provoking the Jesuits and thus calling into question the fragile peace that had just been established. However, we still need an explanation as to why the Cartesians seemed powerful enough to threaten the peace of the kingdom.

2.3. The Social Question: Cartesians as a Party

A passage in the *Memoirs* of Louis XIV provides an interesting clue: in the year 1661, the king notes that "I applied myself to destroying Jansenism, and to dispelling the communities where this spirit of novelty was fomented, well-intentioned perhaps, but which ignored or wished to ignore the dangerous consequences it could have." Commenting on this passage, François Bluche remarks that not only were some Jansenists linked to the *Fronde* of the princes and to that of the parliamentarians, but that Jansenism appeared as "a sect, a Chapel, a semi-secret semi-visible society"—in short, as a particular body in the state, thereby threatening absolute monarchy.[81] The hypothesis about this remark that I would like to defend is that, regardless of the doctrinal affinities that would have brought together the Jansenists and the Cartesians—which, as we have seen, (p. 773) were finally quite weak—they both appeared as a party, a sect, and a particular body susceptible to creating divisions in the kingdom.

It should first be remarked that only those who have gained reputation enough to threaten the established order are condemned. In 1675, Jean-Baptiste La Grange asked with surprise why no one cared to condemn Descartes some twenty years earlier (La Grange 1675: 40). Vincent answered this question by noting that, at the time of publication of his own *Cursus philosophicus* (1658), Descartes "laid almost anonymous; if he had some reputation among the peoples of the North, he had none in France, or almost none" (Vincent 1677, Dédicace to Gérauld du Bourg: n.p.). But, from the late 1650s on, an intense Cartesian propaganda campaign emerged in France, which involved ostentatious manifesta-

tions such as the reburial of Descartes at Saint-Étienne-du-Mont in 1667, but also some family and patronage networks.[82] Just like Jansenism, Cartesianism was a family matter, actually organized around Clerselier. Chanut, who inherited the papers that Descartes left when he died in Stockholm, was (since 1626) the brother-in-law of Clerselier, who in turn became the father-in-law of Rohault in 1664. Patronage intervened as well, among others with Pierre d'Alibert, Henri-Louis Habert de Montmor, Jean-François Paul de Gondi known as cardinal de Retz, and Prince Louis II de Bourbon-Condé.

Jansenists were famous for their publications, especially in the domain of pedagogy; similarly, Descartes's followers not only published his unedited works, but they established an editorial continuity between their master's work and their own by commenting on these works. Even if there was sometimes disagreement between them, they expressly identified themselves as supporters of Descartes. They did not seek to found a new system of philosophy, but rather to make Descartes's ideas accessible and to apply them to new domains. The year 1664 saw the publication of *Le monde* along with two pieces presented at the *Académie Montmort*: the *Discours … touchant le mouvement et le repos* by Cordemoy and the *Discours de la fièvre* by Rohault; of the *Traité de l'homme*, together with Descartes's *Traité de la formation du foetus*, an *Épistre*, a long *Préface* by Clerselier, copious *Remarques* of Louis de La Forge, and finally the French translation of Schuyl's Preface to the 1662 Latin edition; and, lastly, of the second edition of Arnauld and Nicole's *Logique*, which included excerpts of the thirteenth and fourteenth (yet unpublished) *Regulae ad directionem ingenium*. In 1666, Louis de La Forge issued his *Traité de l'esprit de l'homme … suivant les principes de M. Descartes* and Cordemoy his *Le discernement du corps et de l'âme en six discours*; in 1667, André Martin published under the pseudonym of Ambroise Victor the first five volumes of his *Philosophia cartesiana*; a sixth volume defending the thesis of animal-machines was to be published in Saumur in 1671. 1668 is the year of publication of a volume containing the *Explication des Machines* and of a French translation of the *Compendium musicae* with ample elucidations written by Poisson, but also of Cordemoy's *Discours physique de la parole* and of a letter in which he defends the idea that Descartes's explanations of the action of animals and of the formation of the world were not dangerous for religion. In 1670, Poisson issued his (p. 774) *Commentaire ou Remarques sur la méthode de René Descartes*, which, he thought, would be the first of a long series—except that he was then forbidden to publish anything of the sort by his superiors.[83] Finally, as we have mentioned, Rohault published both his *Traité de physique* and his *Entretiens sur la philosophie* in 1671.

Just like the Jansenists, the Cartesians thus appeared as a closely-knit group of people who were able to deploy an enormous intellectual activity, particularly in terms of publications, and to set the tone in cultivated circles. An illuminating comparison with Gassendists has often been proposed in this regard: Gassendi's atomism was as difficult to reconcile with the dogma of the Eucharist as Descartes's doctrine of extension was, and, more generally, his natural philosophy was as damaging to Aristotle's natural philosophy. Still, Gassendi was not put on the Index, and his works, even if they were criticized, were not officially condemned in France in this period. This is yet another proof that the issue of transubstantiation is not sufficient to explain the condemnations of Descartes's

natural philosophy; as has been noted, “the success of the Gassendists in avoiding harassment is a sign of their failure to package and promote Gassendi’s system”.[84] For a better understanding of what packaging and promoting Cartesianism meant in terms of the social organization of intellectual life, we can consider how some anti-Cartesians—Samuel Sorbière and Jean Chapelain, the two main Gassendists in France, but also Pierre Petit and Edme Mariotte, who embodied what I have elsewhere called a “radical experimentalism”[85]—regarded Cartesian natural philosophy.

At first, Descartes was for Sorbière and Chapelain an author to be promoted, both for the renewal of philosophy to which he contributed and for the beauty of his style. But, by the end of the 1650s and the early 1660s, they reproached Descartes for behaving like the head of a party and Cartesians for bowing submissively to his views. Although “sect” may refer neutrally to a philosophical school, there is no doubt that it was used in a negative fashion in this case. Thus, Chapelain wrote that Descartes was “happy to have disciples [*sectateurs*] who swore on his dogma and believed things that he did not himself believe”.[86] Similarly, Sorbière noted that Descartes was “very affirmative, as every Doctor has to be if he pretends to become a head of a sect”, and that he required from his disciples “docility and patience to mull over [his] doctrine in their mind until it was strongly imprinted on their memory”.[87] In the parallels he established between Gassendi and Descartes, Sorbière noted that, while the former did not hesitate to present his thoughts in a familiar fashion to those with whom he conversed, the latter refused all dialogue and referred those he spoke with to his writings (Sorbière to Petit, November 10 and February 10, 1657, in Sorbière 1660: 679, 691). Or, still, that Gassendi tended to suspend his judgment and to note that we can reach only conjectural knowledge, while Descartes pretended to “become the head of a party, or the founder of a sect, and to (p. 775) impose on the half-learned by the bold efforts of a fertile and strong imagination” (Sorbière 1665: 18). If Descartes succeeded in seducing so many disciples, it was because his works were brilliant—though not very solid. Chapelain wrote to Carrel de Sainte-Garde, who published his *Lettres contre la philosophie de Descartes* in 1663, that in Descartes’s system, he found “great brilliance, great novelty, and a happy use of the ancient doctrine of Democritus for the multiplication of worlds and the modern experiments with magnets for the constitution of his machine, as well as beautiful applications of the nature of motion that could only arise from a greatly inventive mind clever at using everything to his ends”.[88] As for Sorbière, he compared Descartes to an acrobat jumping and pirouetting on a wooden horse to impress passing onlookers.[89]

According to other anti-Cartesians, the problem of the Cartesian party was not only that Descartes imposed his views on his disciples. Another important aspect of Cartesian dogmatism, which was not developed by Sorbière and Chapelain but by those who wished to establish a new physics based only on experimentation, was that Descartes and the Cartesians neglected experiments. They preferred to say what they thought, and more precisely what Descartes had thought, than to say what they saw. So Pierre Petit, in his *Discours sur les comètes* (1665), underlined that subtle matter was only invented as an ad hoc explanation of Torricelli’s quicksilver experiment; that “sense and experiments” refute the “nice words and arguments drawn from the obscure, arrogant and presumptuous princi-

ples" through which Descartes pretended to explain how fire comes from flintstone; and that Nicolas Steno proved that most of Cartesian anatomy is a fantasy.[90] Moreover, these false explanations derived from the sophism that a hypothesis is proven if it accounts for an effect (Petit 1665: 230–1, 251–2). Similarly, three of the reasons given in Mariotte's *Essai de logique* (1678) for the lack of progress made by physics came from the neglect of experimentation that characterized Cartesians. First, notes Mariotte, philosophers stubbornly search for the causes of the principles of experience; examples of this fault are the Cartesian explanations of elasticity and magnetism.[91] A second reason for the lack of progress is that Cartesians want to explain everything with a few hypotheses that are insufficiently established from an experimental perspective. From the *Essais de physique*, we see that a typical example of this fault is the Cartesian subtle matter (Mariotte 1992: 98 and Mariotte 1717: I.170–1; II.341). The case is even clearer for the third cause of the lack of progress in physics, which amounts to explaining a natural effect by a single cause, while experience shows that several causes actually contribute to producing it. Mariotte follows this diagnosis by propositions of his *Traité de la percussion* that establish that one cannot explain the communication of motion between bodies solely by the conservation of motion, the fundamental Cartesian law of nature.[92]

(p. 776) The point is not that Sorbière and Chapelain, or Petit and Mariotte, were better physicists or philosophers than Descartes. But these testimonies can help us to understand the characteristics of the Cartesian party in the 1660s and 1670s that played a role in the condemnations of Cartesian philosophy. The question of the proper method of physics had nothing to do with the theology of transubstantiation. Through the testimonies mentioned above, we see that the Cartesian party appeared as a sect to which the dogmas of a master were preferred to the exercise of judgment and to the lessons of experiments. This meant the establishment of a new authority, and this was certainly threatening to the old authorities.

References

Agostini, Siegrid (2009), *Claude Clerselier, editore e traduttore di René Descartes*, 2 vols. Lecce: Comte.

Ariew, Roger (1994), "Quelques condamnations du cartésianisme, 1663–1706", *Bulletin cartésien 22, Archives de philosophie* 57: 1–6.

Ariew, Roger (2011), *Descartes Among the Scholastics*. Leiden and London: Brill. [Revised edition of *Descartes and the Last Scholastics* (1999).]

Ariew, Roger (2014), "Censorship, Condemnations and the Spread of Cartesianism", in Mihnea Dobre and Tammy Nyden (eds.), *Cartesian Empiricism*. Dordrecht, Heidelberg, New York, and London: Springer, 25–46.

Armogathe, Jean-Robert (1969), "Dom Desgabets et Port-Royal", *Chroniques de Port-Royal* 17–18: 68–87.

Armogathe, Jean-Robert (1977), *Theologia cartesiana: L'explication physique de l'eucharistie chez Descartes et Dom Robert Desgabets*. The Hague: Martinus Nijhoff.

Armogathe, Jean-Robert (2005), "Cartesian Physics and the Eucharist in the Documents of the Holy Office and the Roman Index (1671–6)", in Tad Schmaltz (ed.), *Receptions of Descartes: Cartesianism and Anti-Cartesianism in Early Modern Europe*.London and New York: Routledge, 136–46.

Armogathe, Jean-Robert, and Vincent Carraud (2001), "La première condamnation des *Œuvres* de Descartes, d'après des documents inédits des Archives du Saint-Office", *Nouvelles de la République des Lettres* 2: 103–37.

Arnauld, Antoine [anonymous] (1866 [1671]), *Plusieurs raisons pour empêcher la censure ou la condamnation de la philosophie de Descartes*, in Victor Cousin, *Fragments philosophiques pour servir à l'histoire de la philosophie. Philosophie moderne. Première partie*, 5th edition. Paris: Didier and Co., 303–17.

Arnauld, Antoine (1775–83), *Œuvres de Messire Antoine Arnauld, docteur de la maison et société de Sorbonne*, 43 vols. Lausanne, Paris: Sigismond d'Arnay et Compagnie.

Arnauld, Antoine (1990 [1680]), *Examen du traité de l'essence des corps*. Paris: Fayard.

Azouvi, François (2002), *Descartes et la France: Histoire d'une passion nationale*. Paris: Fayard.

Babin, François (1679), *Journal ou relation fidèle de tout ce qui s'est passé dans l'université d'Angers au sujet de la philosophie de Des Chartes en l'execution des ordres du Roy pendant les années 1675, 1676, 1677 et 1678*. Angers: n.p.

Baillet, Adrien (1691), *La vie de M. Descartes*, 2 vols. Paris: Daniel Horthemels.

Bayle, Pierre (1684–9), *Nouvelles de la République des lettres*. Amsterdam: Mortier.

(p. 777) Bayle, Pierre (1684), *Recueil de quelques pièces curieuses concernant la philosophie de M. Descartes*. Amsterdam: Desbordes.

[Bernier, François, and Nicolas Boileau Despréaux] (1671), *Requeste des Maistres es arts, Professeurs, & Regens de l'Université de Paris presentée à la Cour Souveraine de Parnasse: en semble l'Arrest intervenu sur ladite Requeste*. Delphes: citée des Imprimeurs de la Cour de Parnasse.

Bluche, François (1986), *Louis XIV*. Paris: Fayard.

Bossuet, Jacques-Bénigne (1900 [1674–5]), "Examen d'une nouvelle explication du mystère de l'Eucharistie", ed. Eugène Levesque, *Revue Bossuet* 1: 129–58.

Bossuet, Jacques-Bénigne (1909–25), *Correspondance de Bossuet*, ed. Charles Urbain and Eugène Levesque, 15 vols. Hachette: Paris.

Bouillier, Francisque (1868), *Histoire de la philosophie cartésienne*, 3rd edition, 2 vols. Paris: Delagrave et Cie.

Brockliss, Lawrence (1995), “Descartes, Gassendi, and the Reception of the Mechanical Philosophy at the French *Collèges de Plein Exercice*, 1640–1730”, *Perspectives on Science* 3: 450–79.

Cally, Pierre (1674), *Institutio philosophiae quam docet Petrus Cally*. Caen: Poisson.

Chapelain, Jean (1880–3), *Lettres de Jean Chapelain*, ed. Philippe Tamizey de Larroque, 2 vols. Paris: Imprimerie Nationale.

Charles-Joseph de Troyes [Père P.C.J.D.T.P.C.] (1682), *La philosophie de Monsieur Descartes contraire à la foi catholique avec la réfutation d’un imprimé fait depuis peu pour sa defense*. Paris: G. Caillou.

Clerselier, Claude (1682), “Préface”, in *Œuvres posthumes de Rohault*, ed. Claude Clerselier. Paris: Desprez.

Collacciani, Domenico (2016), “The Reception of *L’Homme* Among the Leuven Physicians: The Condemnation of 1662 and the Origins of Occasionalism”, in Delphine Antoine-Mahut and Stephen Gaukroger (eds.), *Descartes’ Treatise on Man and its Reception*. Dordrecht, Heidelberg, New York, and London: Springer, 103–25.

Collacciani, Domenico (2017), “La censure du cartésianisme à Louvain: les thèses de médecine du 29 août 1662”, *Bulletin cartésien 46, Archives de philosophie* 80: 162–5.

Cousin, Victor (1866), *Fragments philosophiques pour servir à l’histoire de la philosophie. Philosophie moderne: Première partie*, 5th edition. Paris: Didier et Cie, Durand.

Daniel, Gabriel (1691), *Voyage du monde de Descartes*. Paris: Vve Bénard.

De la Font, Charles (1673), *Apologie pour la nouvelle philosophie touchant quelques-uns de ses principes que l’on fait voir n’être point contraires aux Veritez de la Foy. …* Lyon: n.p.

De Saint-Marc, Charles-Hugues Le Febvre (1772), “Avertissement au sujet de l’arrêt burlesque rendu en la Grand’Chambre du Parnasse”, in François Boileau-Despréaux, *Œuvres*, 5 vols. *Nouvelle edition*. Amsterdam: Changuion, III: 399–429.

Del Prete, Antonella (2001), “Explications sur le mystère de l’Eucharistie suivant les principes de la philosophie de Descartes”, *La Lettre clandestine* 10: 226–60.

Desgabets, Robert [anonymous] (1671), *Considerations sur l’estat present de la controverse touchant le Tres-Saint Sacrement de l’autel*. Holland: À la Sphere.

Donato, Maria Pia (2009), “Scienza e teologia nelle congregazioni romane. La questione atomista, 1626–1727”, in Antonella Romano (ed.), *Rome et la science moderne: Entre Renaissance et Lumières*. Rome: Publications de l’École française de Rome, 595–634.

Du Vaucel, Louis-Paul (1950 [1681]), *Observations sur la philosophie de Descartes*, in E. J. Dijkesterhuis, Cornélia Serrurier, Paul Dibon et al. (eds.), *Descartes et le cartésianisme* (p. 778) *hollandais: Études et documents*. Paris and Amsterdam: Presses universitaires de France and Éditions françaises d'Amsterdam, 113–30.

Duhamel, Jean (1705), "*Quaedam recentiorum philosophorum ac praesertim Cartesii propositiones damnatae ac prohibitae*", in *Philosophia universalis, sive Commentarius in universam Aristotelis philosophiam ad usum scholarum comparatam. Tomus Quintum*. Paris: Thiboust and Esclassan.

Fontaine, Nicolas (1736), *Mémoires pour server à l'histoire de Port-Royal*, 2 vols. Utrecht: aux dépens de la Compagnie.

Girbal, François (1964), *Bernard Lamy (1640–1715): Étude biographique et bibliographique*. Paris: Presses universitaires de France.

Jourdain, Charles (1862–6), *Histoire de l'université de Paris aux xviie et xviiie siècles*. Paris: Hachette.

La Grange, Jean-Baptiste (1675), *Les principes contre les nouveaux philosophes Descartes, Rohault, Gassendi, le père Maignan, etc.* Paris: Josse.

Lallemand, Paul (1888), *Essai sur l'histoire de l'éducation dans l'ancien Oratoire de France*. Paris: Thorin.

Le Valois, Louis de [La Ville] (1680), *Sentimens de M. Descartes touchant l'essence et les proprietez des corps, opposez à la doctrine de l'Eglise, et conformes aux erreurs de Calvin, sur le sujet de l'Eucharistie*. Paris: Michallet.

Lemaire, Paul (1901), *Le cartésianisme che les bénédictins: Dom Robert Desgabets, son système, son influence, son école*. Paris: Alcan.

Lennon, Thomas M. (1993), *The Battle of the Gods and the Giants: The Legacies of Descartes and Gassendi, 1655–1715*. Princeton: Princeton University Press.

Lewis, Geneviève (1950), "Augustinisme et Cartésianisme à Port-Royal", in E. J. Dijkesterhuis, Cornélia Serrurier, Paul Dibon et al. (eds.), *Descartes et le cartésianisme hollandais: Études et documents*. Paris and Amsterdam: Presses universitaires de France and Éditions françaises d'Amsterdam, 131–82.

McClaughin, Trevor (1979), "Censorship and Defenders of the Cartesian Faith in Mid-Seventeenth Century France", *Journal of the History of Ideas* 60: 563–81.

Malebranche, Nicolas (1958–67), *Œuvres de Malebranche*, ed. André Robinet, 20 vols. Paris: Vrin.

Mariotte, Edme (1717), *Œuvres de Mr Mariotte, de l'Académie Royale des Sciences, divisées en deux tomes, Comprenant tous les Traitez de cet Auteur, tant ceux qui avoient*

déjà paru séparément, que ceux qui n'avoient pas encore été publiez. Leiden: P. van der Aa.

Mariotte, Edme (1992), *Essai de logique*, ed. Alan Gabbey and Guy Picolet. Paris: Fayard.

Monchamp, Georges (1886), *Histoire du cartésianisme en Belgique*. Brussels: Académie Royale de Belgique.

Nadler, Steven (1988), "Arnauld, Descartes and Transubstantiation: Reconciling Cartesian Metaphysics and Real Presence", *Journal of the History of Ideas* 49: 229–46.

Neveu, Bruno (1968), *Sébastien Joseph du Cambout de Pontchâteau (1634–1690) et ses missions à Rome d'après sa correspondance et des documents inédits*. Rome: École française de Rome.

Nicole, Pierre (1718), *Lettres de Feu M. Nicole. Nouvelle edition revue, corrigée et augmentée*, 2 vols. Lille: Jean-Baptiste Brovellio.

Oldenburg, Henry (1965–73), *The Correspondence of Henry Oldenburg*, ed. and trans. Alfred Rupert Hall and Marie Boas Hall, 9 vols. Madison, Wisconsin and London: University of Wisconsin Press.

Orcibal, Jean (1950), "Descartes et sa philosophie jugés à l'hôtel Liancourt", in E. J. Dijkesterhuis, Cornélia Serrurier, Paul Dibon et al. (eds.), *Descartes et le cartésianisme hollandais: Études* (p. 779) *et documents*. Paris and Amsterdam: Presses universitaires de France and Éditions françaises d'Amsterdam, 87–107.

Petit, Pierre (1665), *Dissertation sur la nature des comètes. Au Roy. Avec un Discours sur les prognostiques des éclipses et autres matières curieuses*. Paris: Billaine and Jolly.

Poisson, Nicolas Joseph (1670), *Commentaire ou remarques sur la méthode de René Descartes*. Vendôme: Hip.

Poisson, Nicolas Joseph (2000 [1675]), *Sur la philosophie de M. Descartes*, ed. Emanuel Faye, *Corpus* 37: 109–30.

Ragayne de la Picottière, Louis (1665a), *De duplici cometa vero et ficto positiones mathematicae. Propugnabuntur a Ludovico Ragayne de la Picottière in Collegio claromontano Societatis Iesu. Die 12 junii 1665*. n.p.

Ragayne de la Picottière, Louis (1665b), *De hypothesi cartesiana positiones physicomathematicae. Propugnabuntur a Ludovico Ragayne de La Picottiere Parisino (i.e. Sagiensi) in Collegio Claramontano Societatis Iesu. Die 13. Junii 1665*. n.p.

Rochon, Antoine [anonymous] (1672), *Lettre d'un philosophe à un cartésien de ses amis*. Paris: T. Jolly.

Rohault, Jacques (1978 [1671]), *Entretiens de philosophie*, in Pierre Clair (ed.), *Jacques Rohault (1618–1672): Bio-bibliographie. Avec l'édition critique des "Entretiens sur la philosophie"*. Paris: CNRS.

Roux, Sophie (2011), *L'"Essai de logique" de Mariotte: Archéologie des idées d'un savant ordinaire*. Paris: Classiques Garnier.

Roux, Sophie (2013), "A French Partition of the Empire of Natural Philosophy (1670–1690)", in Dan Garber and Sophie Roux (eds.), *The Mechanization of Natural Philosophy*. New York, Dordrecht, Boston, and London: Kluwer Academic Publishers, 55–98.

Roux, Sophie (2014), "Was There a Cartesian Experimentalism in Seventeenth Century France?", in Mihnea Dobre and Tammy Nyden (eds.), *Cartesian Empiricism*. Dordrecht, Heidelberg, New York, and London: Springer, 47–88.

Roux, Sophie (2017), "The Two Comets of 1664–1665: A Dispersive Prism for French Natural Philosophy Principles", in Peter Anstey (ed.), *The Idea of Principles in Early Modern Thought*. London and New York: Routledge, 98–146.

Sallo, D. de (1666), *Le Journal des sçavans de l'an MDCLXVI*. Paris: Cusson.

Schmaltz, Tad (1999), "What Cartesianism Has to Do with Jansenism", *Journal of the History of Ideas* 60: 37–56.

Schmaltz, Tad (2002), *Radical Cartesianism: The French Reception of Descartes*. Cambridge: Cambridge University Press.

Schmaltz, Tad (2017), *Early Modern Cartesianisms: Dutch and French Constructions*. Oxford: Oxford University Press.

Sévigné, Madame de (1853), *Lettres de Madame de Sévigné avec les notes de tous les commentateurs*. Paris: Firmin Didot Frères.

Simon, Richard (1710), *Bibliothèque critique*. Amsterdam: Delorme.

Sorbière, Samuel (1660), *Lettres et Discours sur diverses matières curieuses*. Paris: Clousier.

Sorbière, Samuel (1665), *Discours de M. de Sorbière sur la comète*. [s.l.]: [s.n.]

Sorbière, Samuel (1694), *Sorberiana sive Excerpta ex ore Samuëlis Sorbiere*. Toulouse: Colome.

Verbeek, Theo (1988), *La querelle d'Utrecht*. Paris: Les Impressions Nouvelles.

Vincent, Jean (1677), *Discussio peripatetica in qua philosophiae cartesianae principia … dilicude examinantur*. Toulouse: Colome and Posuel.

Notes:

([1]) Cousin 1866: III.297–332 and Bouillier 1868: I.466–85.

([2]) Cousin 1866: III.140–296 and Bouillier 1868. I.437–47.

([3]) For this part of the chapter, in addition to Cousin 1866 and Bouillier 1868, see Armogathe 1977; McClaughin 1979; Ariew 1994; Schmaltz 2002: 27–74; Azouvi 2002: 19–47; Armogathe 2005; Ariew 2011: 241–94; Ariew 2014; Schmaltz 2017: 22–35.

([4]) Monchamp 1886: 614–15; Armogathe and Carraud 2001: 131–2.

([5]) Monchamp 1886: 617–18; Armogathe and Carraud 2001: 130–1. The thesis in question is the *Repetitio thesium omnium medicarum* (Collacciani 2017). On March 31, 1662, Dorlix had already presided a thesis inspired by the *Traité de l'homme*, which was not yet published (Collacciani 2016).

([6]) Duhamel 1705: 11–5; Monchamp 1886: 618–21; Armogathe and Carraud 2001: 133–5. I refer to the "*Quaedam recentiorum philosophorum* ac praesertim Cartesii propositiones damnatae ac prohibitae" published at the end of Duhamel's *Philosophia universalis* as Duhamel 1705. However, Petit Demontempuys, a professor accused of Jansenism and of Cartesianism, attributed this collection to C. de Precelles ("Pièces justificatives" in Jourdain 1862–6: 133–4).

([7]) Their two *censurae* are published in Armogathe and Carraud 2001, which completes the documents given in Monchamp 1886: 611–22.

([8]) Agostini 2009: II.218.

([9]) In the third edition (1654), Plempius already inserted five letters from colleagues that condemned Descartes.

([10]) Sallo 1666: 61.

([11]) Poisson 1670: 218–19. Poisson (2000 [1675]), referring again to Plempius, mentions only the condemnation of Louvain.

([12]) Antoine Vinot to Clerselier, January 27, 1664, in Agostini 2009: II.218; Baillet (1691: II.529), who traced this attribution to Arnauld. Fabri actually intervened, but only after the decree of the king. In order to disentangle himself from the accusations caused by his *Apologeticus Doctrinae Moralis Societatis Jesu*, he informed the Congregation of the Index that some French Cartesians were introducing a new explanation of transubstantiation, which led to enquiries all over Europe (Armogathe 2005; Donato 2009: 605–8).

([13]) Jourdain 1862–6: 219–22.

([14]) On the issue of transubstantiation, see Lewis 1950; Armogathe 1977; Nadler 1988; Ariew 2011: 217–40; Del Prete 2001; Armogathe 2005; Schmaltz 2002: 29–76; Ariew 2011: 217–40.

([15]) AT VII.248–56. This development was omitted in the first edition of the *Meditations* to try to obtain the approbation of the Faculty of Theology of the University of Paris (AT III. 416, 772, and 785).

([16]) This list is given in Armogathe 1977: 70–1. The mss 366 of the Bibliothèque municipale de Chartres is partially published in Agostini 2009, II.

([17]) Agostini 2009: II.60–9, 222–87.

([18]) Armogathe 1977: 88–9.

([19]) Agostini 2009: II.117 (Fabri's censure), 122–4 (Malaval's censure), 190–1 (Vinot's advice).

([20]) Agostini 2009: II.74.

([21]) Lemaire 1901: 118–24.

([22]) Agostini 2009: II.145–60.

([23]) Arnauld 1775–83: I 670. Arnauld's letters are dated from October 18 and November 19, 1669. There is some dispute about this date (Arnauld 1775–83: XXXVIII.xxi–xxii; Rodis-Lewis 1950: 155–6; Schmaltz 1999: 42), but there is other evidence that Arnauld and Nicole expressed their disagreement with Desgabets's views before he wrote the *Considerations* (Arnauld [1775–83: XXXVIII.xxi] mentions two letters from Desgabets of September 1670 that refer to conversations he had with them; Desgabets, in a letter to Bossuet of September 5, 1671 [in Bossuet 1909–25: I.224–5], says that he was obliged to write to present his opinions against their "complaints and threats").

([24]) Nicole 1718: I.445–6, 451–2. Moreover, the records we have of the conversations that took place at the *Hôtel Liancourt* show Nicole presenting the opinions of the Cartesians on the Eucharist as "heretical" (Orcibal 1950: 97, n. 61).

([25]) Pontchâteau to Neercassel, July 12/22, 1664, in Neveu 1968: 368. Contrary to Arnauld's editors (Arnauld 1775–83: XXXVIII.xx–xxi) and to Neveu, I think that Arnauld was here commenting on Thomas Bonart's *Concordia scientiae cum fide*, first published in 1659, put on the Index in 1662, finally re-edited in 1664. Thomas Bonart was a pseudonym for Thomas Barton, alias Thomas Anderton, an English Jesuit who, being condemned and ordered to go to Rome, fled through Europe, left the Jesuits, and finally sought refuge in Ireland where he apostatized. Not only does *Concordia scientia cum fide* agree perfectly with what Arnauld says, but it was well known to Jansenists, as Du Vaucel (1950 [1681]: 116) makes clear.

([26]) Armogathe 1977: 105.

([27]) Lemaire 1901: 125, and Desgabets to Clerselier, March 1, 1664, in Agostini 2009: II. 75. Armogathe (1969: 73–9) examines the criticisms that Desgabets formulated when he read Arnauld's and Nicole's *Logique*.

([28]) Desgabets 1671: 6. For Desgabets's philosophical commitments, see Schmaltz 2002: 47–52, 77–212.

([29]) Desgabets to Clerselier, July 20, September 24, October 19, November 19, and December 10, 1671, in Agostini 2009: II.90–1, 86, 95, 96, 85; Desgabets to Bossuet, September 5, 1671, in Bossuet 1909–25: I.226.

([30]) Lemaire 1901: 123–7. Desgabets to Clerselier, September 24, 1671 and Clerselier to Desgabets, as confessor of Louis XIV January 6, 1672, in Agostini 2009: II.86 and 105. Ferrier replaced his protector the Jesuit François Annat in 1670; in 1664, he had published two anti-Jansenist libels, *L'idée véritable du jansénisme* and the *Relation fidelle et véritable de ce qui s'est fait depuis un an dans l'affaire des jansénistes*.

([31]) Duhamel 1705: 18. There is here an allusion to the condemnations that the Faculty of Theology and the Parlement of Paris pronounced in 1624 against the anti-Aristotelian theses of Jean Bitaud, Étienne de Claves, and Jean Villon. At the beginning of August 1671, Champvallon also met Michele Angelo Vibo, Internuncio to France from July 1671 to June 1672, to report which measures were taken (Armogathe 2005: 143).

([32]) Jourdain 1862–6: 234–5.

([33]) Babin 1679: 5–6; Duhamel 1705: 15–17.

([34]) Arnauld 1866 [1671]: 182; De Saint-Marc 1772: 403–4.

([35]) Jourdain 1862–6: 235.

([36]) De Saint-Marc (1772: 401) mentions a manuscript according to which it was Lamoignon himself who asked Boileau to compose the *Arrêt*.

([37]) Arnauld 1866 [1671], commented on in Nadler 1988: 240–1 and in Ariew 2011: 270–5. Bernier and Boileau 1671.

([38]) Agostini 2009: I.86–7; Lemaire 1901: 51. Armogathe (1977: 133–4) gives a partial transcript of Desgabets's interrogation, which was transmitted to Champvallon by Clerselier (Agostini 2009: II.106).

([39]) Agostini 2009: II.85–6, 106–7.

([40]) Armogathe 2005: 145.

([41]) Duhamel 1705: 19–21.

([42]) Duhamel 1705: 28–9.

([43]) Duhamel 1705: 29–30.

([44]) Cally 1674: 53–7, 180–201; Bayle 1684–9 (1687): 96–7.

([45]) Babin 1679: 30–2.

([46]) Babin 1679: 58–62.

([47]) Lallemand 1888: 147–8.

([48]) Lallemand 1888: 122.

([49]) Babin 1679: 72–6; Lallemand 1888: 129.

([50]) Babin 1679: 82–3; Duhamel 1705: 30–1. Such a freedom had been granted to them in their Fifth Assembly (1644).

([51]) Babin 1679: 85; Bayle 1684: 11–12; Duhamel 1705: 31.

([52]) Babin 1679: 93–4.

([53]) Jourdain 1862–6: 269.

([54]) Duhamel 1705: 33–4.

([55]) Schmaltz 2017: 55–6.

([56]) Ariew 2014: 37–44.

([57]) Babin was appointed Professor of the Faculty of Theology at the University of Angers in May 1676, apparently against the advice of Henri Arnauld, Bishop of Angers and one of Antoine Arnauld's older brothers; C. de Precelles was responsible for the accusation of Demontempuys ("Pièces justificatives" in Jourdain 1862–6: 133–4).

([58]) Besides the books already referred to, see Rochon 1672: 4–17, 66–81; De La Font 1673; La Grange 1675: 2–6, 99–135; Vincent 1677: 55–60; Le Valois 1680: 99–317, 173–85; Malebranche 1958–67: XVII–1.477–531; Arnauld 1990 [1680]; Du Vaucel 1950 [1681]: 113–16; Charles-Joseph de Troyes 1682.

([59]) See above in the case of Arnauld and Rohault; Bossuet 1900 [1674–5]; Bossuet to François de Nesmond, February 9, 1701 (censoring Cally), and to Jean Antoine Pastel, March 24, 1701 (censoring Descartes himself), in Bossuet 1909–25: XIII.34–6, 45–6.

([60]) Arnauld 1866 [1671]: 308–9. See also Rohault 1978 [1671]: 110; Baillet 1691: II.529.

([61]) Arnauld 1866 [1671]: 310–13; Rohault 1978 [1671]: 111; Clerselier 1682.

([62]) La Grange 1675: 90, 100; Babin 1679: 42; Le Valois 1680: 119–39, 147–9, 183–220.

([63]) Ariew 2014: 27–31.

([64]) Armogathe and Carraud 2001: 110–20.

([65]) See Ragayne de la Picottière 1665a, 1665b.

([66]) Ragayne de la Picottière 1665b: 16.

([67]) Roux 2017: 113–15.

([68]) Babin 1679: 35–45, 67–71.

([69]) See Verbeek 1988.

([70]) About the Cartesian companies in Paris, see Roux 2014. For Toulouse, see Fermat to Oldenburg, September 21, 1668, June 5 and 25, 1669, in Oldenburg 1965–73: V.53 and VI. 95, 445.

([71]) Clerselier 1682; Vincent 1677: 521.

([72]) Mme de Sévigné to her daughter, September 16, 1676 (Sévigné 1853: III.172), presents Le Bossu as “Jansenist, that is, Cartesian in perfection”; Simon notes in 1682 that “the people of Port-Royal, who are in everything at the antipodes of the Jesuits, strongly take sides with Descartes’ party” (Simon 1710: IV.99); Jurieu insinuated that Jansenist theologians cared more for Cartesianism than for Christianism (in Arnauld 1775–83: XIV.615); according to Daniel (1691: 197), Arnauld was responsible for the fact that “one saw few Jansenist philosophers who were not Cartesian”.

([73]) Lewis 1950; Nadler 1988: 229–30; Schmaltz 1999.

([74]) Lewis 1950: 145, n. 56.

([75]) Nicole to Quesnel, May 30, 1682, in Lewis 1950: 147.

([76]) Fontaine 1736: II.54.

([77]) Quoted in Girbal 1964: 33.

([78]) Clerselier to Desgabets, January 6, 1672, in Agostini 2009: II.104, 107. Similarly, at the beginning of August 1671, Champvallon told the Internuncio Vibo that he took steps “because he saw that a school of philosophers, calling themselves Cartesians, had begun to form, and that they were making *public* their theses” (Vibo to the Secretary of the State, August 14, 1671, quoted in Armogathe 2005: 143; my emphasis).

([79]) Desgabets to Bossuet, September 5, 1671 (in Bossuet 1909–25: I.227–8), rejoiced that the general principles of Descartes’s philosophy were to be taught to the Dauphin.

([80]) Bluche 1986: 317–21.

([81]) Bluche 1986: 309.

([82]) Baillet (1691: II.429–43) gives a long description of the ceremonies associated to the reburial.

([83]) Lallemand 1888: 120–1.

([84]) Schmaltz 1999: 48. Before Schmaltz, see Lennon 1993: ch. 1; Brockliss 1995; and Ariew 2011: 267–94.

([85]) Roux 2014.

([86]) Chapelain to Carrel de Sainte-Garde, May 27, 1662, in Chapelain 1880–3: II.235–6. See also Chapelain to Heinsius, February 6, 1659, to Carrel de Sainte-Garde, December 15, 1663, and to Bernier, February 16 and April 26, 1669, in Chapelain 1880–3: II.17, 341, 622, 640.

([87]) Sorbière to Saumaise, March 10, 1650, and to Petit, November 10, 1657, in Sorbière 1660: 535 and 679–80.

([88]) Chapelain to Carrel de Sainte-Garde, February 16, 1662, in Chapelain 1880–3: II.203–4. Descartes is said to have “great brilliance (*brillant*)” and to be “more glistening (*luisant*) than solid” (Chapelain to Carrel de Sainte-Garde, February 16 and May 27, 1662, in Chapelain 1880–3: II.203, 236).

([89]) Sorbière 1694: 93–4.

([90]) Petit 1665: 222–3, 252–4. Interestingly, some Jesuits also developed this criticism of Cartesianism (Roux 2013: 83–7).

([91]) Mariotte 1992: 97, 103.

([92]) Mariotte 1992: 98. For more on Mariotte’s epistemology, see Roux 2011.

Sophie Roux

École Normale Supérieure (Paris)

Pierre-Daniel Huet, Skeptic Critic of Cartesianism and Defender of Religion

Thomas M. Lennon

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Abstract and Keywords

Pierre-Daniel Huet (1630–1721) was Cartesianism's most implacable critic ever. And more than any other critic, he raised the Cartesian issues that have been of perennial interest: the method of doubt, the *cogito*, clarity and distinctness as criteria of truth, the natural light, the circularity of the *Meditations*, proofs of God's existence, etc. Moreover, under the term Cartesianism his *Censura Philosophiae Cartesianae* (1689) attacks both Descartes's own texts and those of his followers, most notably Malebranche. Pretty clearly, Huet's perspective was a strong sort of skepticism; but, unlike some later skeptical critics, his aim was not to subvert religion, but to defend religion against what he saw as the Cartesian subversion of it.

Keywords: Pierre-Daniel Huet, Malebranche, Régis, skepticism, Censura, doubt

(p. 780) AN entry on Huet is particularly pertinent for inclusion in this Part of the Handbook, on Cartesianism's critics. For not only was Huet its most implacable critic ever, but he also attacked Cartesianism or Cartesian philosophy as such, thus defining, better than anyone else in the period, how it came to be understood, which is one of the desiderata of this volume. More than any other critic, he raised the Cartesian issues that have been of perennial interest: the method of doubt, the *cogito*, clarity and distinctness as criteria of truth, the natural light, the circularity of the *Meditations*, proofs of God's existence, etc. Moreover, under the term Cartesianism his *Censura Philosophiae Cartesianae* (1689) attacks both Descartes's own texts and those of his followers. Not the least aspect of Huet's relevance is the set of rebuttals the *Censura* generated among the Cartesians. Most notable was Pierre-Sylvain Régis, whose exchange with Huet was in many respects a postmortem further set of objections and replies to Descartes's *Meditations*. Pretty clearly, Huet's perspective was a strong sort of skepticism; but, unlike some later skeptical critics, his aim was not to subvert religion, but to defend religion against what he saw as the Cartesian subversion of it.

1. His Life

The facts of Huet's life (1630–1721) are exceptionally important in understanding his philosophical output. From his very early years he had bookish interests that eventually matured into the humanistic antiquarian values that informed his philosophical outlook. (p. 781) The history and geography of the ancient world, its languages and literature, its coinage, commerce, architecture, and much else of antiquity came to be more familiar to him, certainly dearer, than anything of his own time. From his perspective, old is good, to be found in old books; new is bad, or at least suspect, without foundation. By contrast, for Descartes and his followers, old is bad, with history seen as largely a repository of error; new is good, as discovered by each individual who rejects all that comes before, even in his own life. The impending *querelle des anciens et modernes* that gripped literary France at the end of the century was but an instance of this much broader contrast already found in Huet.

Surprisingly, Huet began as an avowed follower of Descartes. He reports that when Descartes published his *Principles*:

> I could not rest until I had procured and perused his book; and I cannot easily express my admiration which this new mode of philosophizing excited in my young mind, which was ignorant of the ancient sects, when, from the simplest and plainest principles, I saw so many dazzling wonders brought forth, and the whole fabric of the world and the nature of things, as it were, spontaneously springing into existence. In fact, I was for many years closely engaged in the study of Cartesianism … and I long wandered in the mazes of this reasoning delirium, till mature years and a full examination of the system from its foundations compelled me to renounce it, as I obtained demonstrative proof that it was a baseless structure and tottered from the very ground.
>
> (Huet 1718: II, 23)

It's not clear what occasioned this near-total *volte face*, from devoted loyalty to Descartes to almost hysterical hostility. A study of Sextus Empiricus in 1662 was acknowledged by Huet as important, but not specifically with respect to Descartes, and by itself exposure to Sextus does not entail such a dramatic turn (Lennon 2008: 18). What is clear is that the revision took place prior to August 1674, when, in his induction speech to the French Academy, Huet bemoaned the neglect of ancient literature, specifically implicating the Cartesians, especially as they impugn the value of memory. At least a drift against antiquarian values can be found in the first three books of Malebranche's *Search After Truth*, published the previous spring. The full barrage, however, came the following year with the publication of the last three books. There, in discussing the inclinations (which is to say the functioning of the human will), Malebranche targets, among other things, the "judgments of counterfeit scholars", who from a defective desire for knowledge end with an utterly baseless pride in their false learning. Over three chapters, six through eight of book four, Malebranche defends Descartes against certain critics who succumb to this in-

clination and make false judgments of him. Though pious, these critics are also superstitious and hypocritical. Only Voetius is named, but the principal target is unmistakably Huet and his antiquarian values.

Certainly, Huet took himself to be targeted, and such was the hostility of Malebranche's barrage that a reply from Huet was inevitable. It came in 1689 with the *Censura*. Whatever might have earlier motivated Huet's Academy attack on Cartesianism, it is obvious that Huet was now replying to Malebranche's text, and that the animus driving the *Censura* (p. 782) lay there. The issues, the images, and the language itself are taken over wholesale and retorted against Cartesianism, which is itself depicted in almost a mantra as a philosophy driven by pride, arrogance, and vanity (Lennon 2008: 23–9). It is a philosophy which makes great show of a novel claim to certainty of the truth, such that there is no other claim to it, but which in fact is a plagiarized amalgam of fallacy, ignorance, and false claims.

2. Apologetics

The dominating if not sole concern of Huet's publishing activity was Christian apologetics —not just the exposition of Catholic doctrine, but its defense by means external to it. The progression of his work evidenced a fairly dramatic expansion of the notion of apologetics, from careful textual analysis to something like a no-holds-barred effort in propaganda.

His earliest major work (1668) was an edition and commentary on the work of Origen, in the course of which he defended this controversial Church Father against the charge of Pelagianism lodged against him by Jansenius (Shelford 2007: 146–53). In 1679, Huet published a *Demonstratio Evangelica*, the principal aim of which is to argue the corroboration of the New Testament on the basis of its fulfillment of the prophecies of the Old Testament. He did so in a way that mimicked geometrical demonstration, which, as he also tried to show, is less certain than empirically derived historical knowledge (Shelford 2002). Along the way, he indicted Spinoza's *Tractatus*.

Huet's *Traité philosophique de la foiblesse de l'esprit humain* was published posthumously (Huet 1723). It has been has conclusively demonstrated, however, that the earliest, more or less complete version of the work was written sometime between 1680 and 1685 as the first of a projected five-part work (Maia Neto 2008a). The third part was to show the agreement between reason and faith, the fourth to compare Christian and pagan doctrines, and the fifth to compare Christian and pagan morals. He was dissuaded from publishing the *Traité* by friendly fellow priests who thought that its strong skepticism would be read as an attack on religious belief. The three latter parts were published in 1690 under the title of *Alnetanae Questiones*, like the *Traité* in dialogue form. The thrust of the work was to dramatically shift the emphasis away from fallible reason toward faith as the only repository of human certainty. Meanwhile, the second part was published separately, under the title *Censura philosophiae cartesianae* (Huet 1689), which despite its separate

publication was no less a part of the fideistic apologetic, a case study to show that unaided reason cannot arrive at truth with certainty.

Except for the first chapter, the eighth and last chapter of the *Censura*, a "general evaluation of the Cartesian philosophy", is longer by far than all the others. The longest by far of all the chapter's sections is a "list of stains on the Cartesian philosophy", whose longest treatment is that it "offends the faith" (ACP: 200–1). The work itself thus gives credibility to Huet's explanation, in the introduction of the Preface, of why he wrote the work. It seems that in conversation with Montausier he convincingly spoke of Descartes (p. 783) as starting with doubt but ending with dogmatic views such that instead of submitting them to the faith, he adjusted the faith to suit them. Montausier urged him, as a matter of duty, to repel such an attack on religion.

That Descartes should adjust the faith to suit his views is for Huet another of the many instances of his arrogance. Descartes claims that his views cannot contradict the faith because "truth is never opposed to truth"; in fact, he is said to have claimed that it would be "impious" to fear that they not agree with the faith. (Presumably, because if they did not agree, the faith would be false.) Instead, Descartes should have concluded from his views contradicting faith that it is they that are false. At this point, Huet's critique becomes rather implausible. For he seems just to beg a crucial question, namely the perceived truth value of those views. For Huet, they are obviously false; but Descartes cannot believe that his views are false, so Huet's critique would be that Descartes is dissimulating, which is an explanation he invokes elsewhere, though not here. In addition, if Huet as a skeptic is an advocate of intellectual integrity, he should advocate it for Descartes no less than for himself. So if Descartes is taken to believe his views to be true, he should not be expected to relinquish them.

Huet's critique becomes even less plausible when he takes Descartes to hold that according to the faith many contradicting things are both nonetheless "utterly true". At this point, Huet attacks the root of Cartesianism, the radical voluntarist doctrine that all truth depends upon the divine will, including the principle of non-contradiction. For he thinks that Descartes accommodates these contradictions, and serves the majesty of God which his philosophy would otherwise reduce, by asserting that "God can do what reason says is impossible and self-contradictory." Huet asserts to the contrary, baldly and without argument, that God's power does not extend to what is "by its nature contradictory … For it may be truly and piously said that the mysteries of the Faith surpass the human mind's comprehension, but not that they contradict reason" (ACP: 202). So, without explicitly saying so, Huet thinks that Descartes's philosophy not only "offends the faith", but is also itself contradictory.

Does Descartes adopt his extreme voluntarism ad hoc for religious reasons? When he announces the doctrine to Mersenne, the connection he makes is not to religion but to the foundation of his physics (AT I.144–5/CSMK 22–3). In any case, the relevance of the question depends on another: does Descartes hold any contradictions to be true? Huet seems to think that because the principle of non-contradiction depends on God's will, it follows

that Descartes does. But this is an obvious non-sequitur. Moreover, given our constrained assent to clearly perceived truth, God would be a deceiver if there were true contradictions. Finally, it strains credulity that Descartes should adopt the extreme version of the Latin Averroist double-truth theory that was condemned in the same sentence by the Fifth Lateran Council, the support of which Descartes explicitly undertakes in the Dedication of the *Meditations* (AT VII.3/CSM II.4). Finally, the relevance of this question itself depends on one more basic question: does Descartes disagree that the mysteries of faith never contradict reason?

Descartes certainly never expresses any such disagreement—on the contrary. That in fact he appears to do so results from Huet's reconstruction of what Descartes does (p. 784) express, on topics relating to his view that there is no real distinction between body, space, and extension (ACP: 179, 211). The attempted reductio ad absurdum fails, however, 1) either because he assumes that one body can penetrate another in the sense of simultaneously occupying its dimensions, or 2) because he assumes a container view of space different from body, such that Descartes's view would leave no room for further creation, or even creation in the first place, or 3) he assumes that in the Eucharist Christ's body is not extended, contrary to the view of Descartes and, perhaps, the Council of Trent.

The most credible instance of a tolerated contradiction is one that in fact Huet does not notice. In the Third Meditation, in connection with his first argument for the existence of God as the cause his idea of Him, Descartes seems effectively to deny the possibility of creation by asserting that "something cannot come from nothing"; but he seems also to assert just that possibility in the second proof by claiming that even conservation in existence requires the same power as would be required to create it anew if it did not yet exist (AT VII.40, 49/CSM II.28, 33). But different notions of causation seem to be involved: as Régis might suggest, exemplary causation in the first instance, efficient in the second. So it turns out that the criticism of Descartes that is closest to the concerns of Huet's publishing activity is the least successful, and is so even when buttressed beyond what he wrote.

3. Skepticism

It might be argued that if Huet is not a skeptic, then no one is, at least in early modern philosophy. But what kind of a skeptic was Huet? Popkin's great contribution was to point out and demonstrate at length the importance of skepticism in the period. (Any doubt about the magnitude of his contribution is resolved by the failure of 'skepticism' to appear even in the indices of the many great works on Descartes published in the half-century leading up to Popkin, and its ubiquity thereafter.) For Popkin, however, the skepticism that he took Descartes to be attempting to refute was a *crise pyrrhonienne*, which involved a universal suspension of belief. He did so because he followed Sextus Empiricus in holding that the only alternative to the dogmatic view that the truth is known is the equally dogmatic view that, paradoxically, nothing is known, not even that nothing is known. But then, Maia Neto showed that just this view, which earlier had come to be

known as Academic skepticism, was if anything more important than Pyrrhonian skepticism in the early modern period (Maia Neto 1997).

So the question about Huet's kind of skepticism raises a number of other questions, beginning with the question of *what* skepticism itself is. This question involves definitions, of course, which, to use a term to conjure with, provide a criterion of identifying its advocates. Another question thereby raised is *when* to apply the criterion. Popkin's thesis is that Descartes begins as a would-be dogmatist, but ends *malgré lui* as a skeptic. Huet thinks that Descartes starts with genuine skepticism and ends by feigning dogmatism. Huet reports that he himself was enthused by Cartesianism, only to discover its grave (p. 785) shortcomings later on. These shortcomings are ferociously detailed in the *Censura* and are never retracted; Maia Neto nonetheless describes Huet as in the end a Cartesian (Maia Neto 2008b).

A related question concerns *who* applies the criterion. Is it the putative skeptic himself, his historical critics, or us, even from the absolute angelic perspective distinguished in the Second Replies that many of us assume to be ours? An author might claim a philosophical pedigree, but that does not block a critic from challenging the claim. Finally, why apply the criterion at all? to what end? Here the answer is so obvious as to be trivial—classification is of use in understanding the texts of certain authors, notably Descartes, and certain others in the period—Montaigne, Foucher, and others, especially Charron. What is non-trivial is that this answer happens to invoke a Huetian perspective. For Huet, such understanding is all that can be hoped for from reading philosophical texts.

For his characterization of Academic skepticism, Maia Neto looked to the New Academy under Arcesilaus, whose position comes down to us from Cicero. Arcesilaus is reported as maintaining that one should not assent to any proposition, since nothing is more disgraceful (*turpius*) than to rashly assent to falsehood or to what is unknown (*incognita*). This methodological position, especially with its implicit moral dimension, anticipates Descartes's resolution to "hold back his assent from opinions that are not completely certain and indubitable", and his characterization of the failure to do so as a reprehensible misuse of the will (First and Fourth Meditations).

Elsewhere, Cicero conveys a weaker, but perhaps more important statement of the Academics' position. By contrast to the dogmatists, "who have no doubt that their tenets are true, … we hold many doctrines as probable, which we can easily act upon but can scarcely advance as certain; yet we are free and less bound in that we possess our power of judgment uncurtailed (*integra nobis est iudicandi potestas*)" (Cicero 1989: I, 8). With such intellectual integrity, one is free of the sorts of prejudices that later led Descartes to wipe the mental slate clean with his method of doubt. The value of this intellectual integrity might be understood in two, not necessarily exclusive ways. It might be intrinsically valuable in more or less Kantian fashion as making us what we most essentially are. Such was the view held by Charron, who according to Maia Neto might have influenced Descartes in this respect (Maia Neto 2008b). Alternatively, intellectual integrity might be instrumentally valuable as a condition for apprehending the truth should it emerge from

the abyss. The truth that would be apprehended might come from two sources: reason, which if this approach is correct would have been Arcesilaus's position, or faith, which was the position of the *libertin érudit* La Mothe Le Vayer, at least according to Popkin. Descartes opts for both sources, maintaining that both divine grace and natural knowledge increase the will's freedom by constraining its assent under the appropriate conditions (AT VII. 58/CSM II.40). In all these divisions, intellectual integrity stands in stark contrast to Pyrrhonian skepticism, which takes suspension of judgment to be a happy insouciance (*ataraxia*), an end in itself with no relation to truth but unconcern.

Cicero also reports, in connection with Arcesilaus's methodological position, that he "maintained that the senses are limited, the mind is feeble, the span of life is short, and (p. 786) that truth is sunk in an abyss", and thus agreed with Democritus that "nothing can be known" (Cicero 1989: I, 44). If Democritus's modal term is read strictly, then it looks as if Academic skepticism is the paradoxical negative dogmatism noted above. But it might also be read as the empirical report that efforts to find truth have so far all failed. In either case, Descartes would not subscribe to this substantive position. For him, once the obstacles posed by the senses, passions, and prejudices of various kinds are removed, the truth is plain, obvious, and irresistible as such.

Where does Descartes's critic Huet stand in this scheme of things? A curious aspect of his *Traité* is that without ever disavowing the work, still less even attempting to destroy it, Huet distanced himself from it in various ways. First by withholding its publication during his lifetime, then by ensuring its eventual publication only under a pseudonym, and also by having it attribute to someone else the views expressed in it, relating them as part of a dialogue that he had with that person. The alleged source of the views was identified by Huet in his *Mémoires* as the Provençal visitor to Normandy who introduced to him the work of Sextus Empiricus. This circumstance would support the near-universal interpretation, both in the period and more recently, of Huet as a Pyrrhonian skeptic. And in fact we do find in the *Traité* what Sextus described as the "summum genus" of his ten modes, namely relativity. We who are thought to know, as well as what we are thought to know, differ relative to circumstances at a time and from one time to another. Also in the fashion of Sextus he deploys the regress argument that a criterion of knowledge would need another criterion to establish it as such, and so on ad infinitum.

Also found in the *Traité*, however, are elements that would have no place in Sextus's *Outlines of Pyrrhonism*. For example, Huet appeals to a kind of nominalism in arguing that because universals are composed of changing particulars, they can never be known. He also argues his skepticism based on holism: all things are connected; hence in order to know one thing all things must be known, thus requiring an infinite capacity of mind that we lack. No Pyrrhonist would hold such metaphysical views. Indeed, the fundamental thrust of Pyrrhonism expressed by a universal *epoche* is nowhere advocated in this work, which instead finds it neither advisable nor even possible. No surprise, then, that the tranquility (*ataraxia*) that is the goal of Pyrrhonism is also absent from the *Traité*.

Late in the work, there is an assertion of intellectual integrity that goes beyond that attributed to Arcesilaus. The freedom of judgment adopted in following one's own lights and rejecting the sectarian dogmas imposed by others is deployed even against the Academics. "In matters of philosophy", says the Provençal, "I want to be free; I want to follow my own views, and to be of no other sect than my own" (Huet 1723: 179). This might be one reason, among other compatible ones, why Huet should want to distance himself from the text that he himself wrote (Lennon 2005: 73–4). Indeed, he ends by extending the same freedom to the reader of the text when he says to the Provençal, "I grant that you have moved me, but this is a matter to be examined; it needs to be analyzed at one's leisure."

If Huet can be read as an Academic skeptic, then it makes sense, however paradoxically, to read this great critic of Descartes as the Cartesian that Maia Neto takes him to be (Maia Neto 2008b). Huet would stand to Descartes as Arcesilaus stood to Plato, but also, (p. 787) we might add, as many Cartesians stood to Descartes, as accepting the most fundamental principles of the master, but using them to correct his misapplication of them. The upshot would be that Huet is "more Cartesian than Descartes himself", to use the expression from Desgabets, himself a corrector of Descartes, though from a very different perspective. One of Maia Neto's several arguments that the context for Huet's correction should be described as Cartesian, rather than just skeptical, is that Huet derives his skeptical doubt and the arguments for it, not from any ancient source, but from Descartes himself. (Recall that Huet was enthused by Descartes before even being exposed to the work of Sextus.) This makes Huet's criticism of Descartes more of an intramural Cartesian dispute even than that, for example, between Arnauld and Malebranche over the nature of ideas.

At one point in the *Censura*, Huet identifies for criticism the Cartesian criterion of truth as attention; once the senses, passions, and other prejudices are neutralized, what is attended to can be reliably taken as true (ACP 130–2). This is not a bad way to express the Cartesian view; certainly, this is the preferred way of Malebranche, who might be Huet's immediate source for it. It is also compatible with Academic skepticism. The bone of contention concerns what is found, even under ideal circumstances. Here is Huet:

> It took the appearance of Descartes to remind us to focus the mind and pay attention. Well, we shall do so, and willingly, as we investigate his philosophy with a sharp and attentive mind. But the fruit of that diligence for us is this alone, that we judge that it must be rejected, that the Cartesians themselves should be urged to use the attention they commend, and if they applied study and care in philosophizing equal to my own, they would immediately perceive the failings of their doctrine, and they would understand that it is one thing to imagine empty visions and follow the errors of a rambling mind, and another to apply the mind. (ACP: 132)

Academic skepticism here arrives at a philosophical dead end, a Mexican stand-off where each side claims to attend yet differs from the other over what is discovered by attending.

For Descartes it is the plain truth, which for Huet remains in the abyss. Resolution can come, for us or for anyone else, it would seem, only by attending to the arguments that enable the attention. This is what Descartes advises in response to Gassendi's suggestion that, instead of the truth rule of clear and distinct perception, he should produce a method to show when we are mistaken in thinking that we clearly and distinctly perceive. Descartes's reply is that he has already done so when he provided a method of arriving at the truth in the first place (AT VII. 279/CSM II.194–5). Huet himself focuses on the evaluation of claims independently of a criterion for doing so, and does so on topics central to Descartes's program: notably, doubt, the *cogito*, the criterion of truth, and proofs for the existence of God. But at a certain point in the attending to this dialectic, Huet throws in the towel and apparently succumbs to the misology that Socrates warns against in the *Phaedo* (40d). For Huet turns to ridicule, hyperbole, and abusive ad hominem attacks. These attacks were soon epitomized in Huet's *Nouveaux mémoires pour servir à l'histoire du cartésianisme*, a philosophical burlesque the premise of which is that, contrary to reports of his death in Stockholm, the short and swarthy (p. 788) Descartes is alive and well in the North, teaching philosophy to the Laps. Huet's account of it is not edifying.

In rebuttal of Régis's *Réponse* to the *Censura*, Huet began annotating and expanding the *Censura* for a future edition, which soon appeared, and by writing the "Censure de la Réponse", which was withheld from publication (Huet n.d.). Both break off at the same point, well before the end of Régis's reply. It seems as if Huet despaired of the feasibility of further attempts to refute Cartesianism by rational, philosophical means, and instead turned to the shenanigans of the *Nouveaux mémoires*. Is there another reading besides this sophomoric capitulation to philosophical nihilism? It might be that Huet turns out to be the best example of the Christian Pyrrhonism that Popkin sees as current in the early modern period. His aim would be to bring about *epoche*, not in order to leave judgment free to embrace the truth, however unlikely, as it would be if he were an Academic skeptic; instead, his aim would be, by any means, to leave faith as the only haven of certainty. Such an aim would seem to be a paradigm of dogmatism, except that the argument for faith would be the traditional one of Pyrrhonian skepticism, namely tradition itself, in this case the Christian tradition. Thus would apologetics and antiquarian values come together in Huet's skeptical attack on Cartesianism.

4. Doubt and its Resolution

Not implausibly, Huet begins the *Censura* by identifying doubt as the foundation of Descartes's system, such that by undermining its use of doubt he would undermine the whole system. His rehearsal of the reasons for doubting is straightforward and positive in the sense that he, like Descartes, takes them to be compelling reasons for doubt, reasonable under the circumstances. Thereupon he immediately objects, however, for he takes Descartes to facilitate this universal doubt by taking everything to be not only uncertain, but false. In thus replacing one judgment by another that is its negation, this step would relinquish doubt as the suspension of judgment.

At this point Régis replied that completely evident truths should be doubted until recognized as such, not that they should be taken to be false. In addition, Descartes's doubt is not real doubt. Instead, using terms that are synonymous for him, Descartes's doubt is a methodological, hypothetical, metaphysical, hyperbolical, or feigned doubt. Everything comes under this doubt, but only for purposes of examination. Real doubt is applied only to things whose nature is not evident to the mind. One begins with feigned doubt, which becomes real when examination fails to reveal its object as evidently true.

Régis's defense of Descartes seems to blur together two different distinctions. One is the distinction between sincere adherence and mendacious pretense with respect to doubt, a distinction uncited in Descartes's account of his own use of doubt, though perhaps found in his account of the skeptics' use of doubt. By contrast to the skeptics, who doubt for the sake of doubting, his doubt is based on "powerful and well-thought-out reasons" (AT VII. 21–2/CSM II.15). The other distinction is one that Descartes does appeal (p. 789) to, between the doubt based on those hyperbolically powerful reasons and what "no sane person has ever doubted" (AT VII.16/CSM II.11; also AT VII.460/CSM II.309).

In his *Censure* of Régis's *Réponse*, Huet seizes upon the blur to insist that all doubt is real doubt, and that the feigned doubt invoked by Régis is no doubt at all. Real doubt comes about from the sort of reasons that Descartes deploys in the First Meditation, such that Descartes's doubt there is real. So-called feigned doubt occurs when one pretends to doubt in order to deceive others into thinking that, contrary to fact, one is doubting. At the end of his analysis, Huet claims it is not doubt that is feigned, for, once again his reasons for doubting are, according to Huet, good ones; instead, Descartes feigns to feign doubting, and the reason for this is that he cannot overcome those initial reasons and the doubt they really generate. So Descartes and Régis too are really cheats, saying one thing and meaning another (Huet n.d.: 9–10). At this point Huet has moved from the methodological realm of the justification of doubt and belief, to the psychological realm of facts about belief. So much is clear when he locates the source of the Cartesian feigning to feign in their pride, arrogance, and vanity; the embarrassing failure to overcome justified doubt is hidden by misrepresenting the doubt as only feigned (Lennon 2008: sec. 12).

Huet is convinced that none of Descartes's attempts to overcome doubt succeeds, not even the *cogito*. His not-unsophisticated analysis occupies most of the first chapter of the *Censura*, on the foundation of Descartes's system. Here, Huet in effect addresses what had already become an exegetical chestnut, namely whether Descartes intended the *cogito* as an inference, an intuition, a performative, or something else. He is aware that Descartes explicitly states that the *cogito* is not a syllogistic inference on the ground that the major premise, whatever thinks exists, would have to be known prior to the existence claim, and that it is rather a recognition by a simple intuition of something that is self-evident (AT VII.1/CSM II.100). Huet takes this statement to be a futile effort to avoid objections to the *cogito* taken as the inference it really is. The futility is obvious, according to Huet. Nothing is so self-evident as to be immune to doubt, witness Carneades's denial of

Euclid's first axiom, and indeed the denial of their own existence by Democritus and the Academics (ACP: 97–8).

Huet takes the *cogito* to be an inference that he variously criticizes as a circular argument (the circle within the overall circular argument of the *Meditations*), or as begging the question, as running afoul of the possibility of God's making contradictory propositions true, and so on (ACP: 72, 75). One of his arguments has achieved minor iconic status. Huet notes that Descartes claims certainty that he exists only so long as he is thinking (AT VII.27/CSM II.18), but argues that the thoughts that he is thinking and that he exists are different and occur at different times. The *cogito* thus should be read either as "I am thinking, therefore I will be", or "I thought, therefore I am", neither of which is valid. Moreover, the argument depends, as does any inference, on memory, which all the Cartesians agree is fallible. In any case, the argument is further evidence of Huet's Pyrrhonism. Like the Pyrrhonists, he takes doubt and its resolution to be a psychological event in real time, as we might say, aimed at a real state—though not the *ataraxia* of the ancients, but instead, faith as a lived condition.

(p. 790) This construal of doubt and the *cogito* is of a piece with much else in Huet's critique of Cartesianism. It is a critique intended to be part of a temporal, real world of causes—of grace and moral justification. As such it is a part of Huet's apologetics, which is not a theory but a praxis, the aim of which is religious conversion, or at least the preparation for it. Descartes does not deny this world, but brackets it in order to theorize in an eternal, ideal world of reasons—of evidence and epistemic justification. Huet reckons that this bracketing dooms to failure its aim to achieve certainty and subverts the only domain where certainty is to be found, viz. faith.

References

Cicero, M. T. (1989), *De Natura Deorum/Academica*, ed. H. Rackham. London: Harvard University Press.

Huet, Pierre-Daniel (1689), *Censura philosophiae cartesianae*. Paris. [Later editions: Kampen, 1690; editio quarta, Paris, 1694; reprinted, Hildesheim: Georg Olms, 1971.]

Huet, Pierre-Daniel (1718), *Commentarius de rebus ad eum pertinentibus*. The Hague.

Huet, Pierre-Daniel (1723), *Traité philosophique de la foiblesse de l'esprit humain*. Amsterdam.

Huet, Pierre-Daniel (2003), *Against Cartesian Philosophy*, ed. and trans. Thomas M. Lennon. New York: Humanity Books [abbreviated in the text as ACP].

Huet, Pierre-Daniel (n.d.), "La censure de la réponse faite par M. Regis Régis au livre intitulé Censura philosophiae cartesianae, par Théocrite de la Roche, Seigneur de Pluvigny." MS. Bibliothèque nationale, Paris, Ff. 14703, no.3.

Lennon, Thomas M. (2005), “The Skepticism of Huet’s *Traité de la foiblesse de l’esprit humain*”, in Sébastien Charles and Marc-André Bernier (eds.), *Scepticisme et modernité.* Saint-Etienne, France: Publications de l’Université de Sainte-Etienne, 65–75.

Lennon, Thomas M. (2008), *The Plain Truth: Descartes, Huet and Skepticism*. Leiden: Brill.

Maia Neto, José Raimondo (1997), “Academic Skepticism in Early Modern Philosophy”, *Journal of the History of Ideas* 58: 199–220.

Maia Neto, José Raimondo (2008a), “Charron and Huet: Two Unexplored Legacies of Popkin’s Scholarship on Early Modern Skepticism”, in Jeremy Popkin(ed.), *The Legacies of Richard Popkin*. International Archives of the History of Ideas, No.198. Berlin: Springer, 155–72.

Maia Neto, José Raimondo (2008b), “Huet sceptique cartésien”, *Philosophiques* 35: 223–39.

Shelford, April (2002), “Thinking Geometrically in Pierre-Daniel Huet’s *Demonstratio Evangelica* (1679)”, *Journal of the History of Ideas* 63: 599–617.

Shelford, April (2007), *Transforming the Republic of Letters: Pierre-Daniel Huet and European Intellectual Life 1650–1720*. Rochester, NY: University of Rochester Press.

Thomas M. Lennon

University of Western Ontario

Gabriel Daniel: Descartes Through the Mirror of Fiction

Justin E. H. Smith

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Abstract and Keywords

This chapter considers the life and work of the French Jesuit Gabriel Daniel (1649–1728), as well as the impact his critique of Descartes had on the legacy of Cartesianism. It pays particular attention to Daniel's use of satire as a means of philosophical critique, and to the long tradition of using satire, which extends back to Lucian of Samosata in the first century CE, as a form of philosophical engagement. The principal focus of the chapter is on the arguments in Daniel's *Voyage du Monde de Descartes* (1690) against dualism, vortex theory, and the uniformity of the physical world.

Keywords: Gabriel Daniel, satire, science fiction, Jesuits, Lucian of Samosata, Harlequin Principle

(p. 791) 1. Lucianic Precedents

IN his *True History*, the second-century CE Greek author Lucian (Samosata, c. 125 CE–Athens(?), after 180 CE) deplores the fact that he can only tell lies, but assures his reader that things are better this way, as he has nothing true to say of any value. This stance towards the truth places him, in his view, above many other men, and notably above many who purport to be philosophers. Lucian's lying "is far more honest than theirs, for though I tell the truth in nothing else, I shall at least be truthful in saying that I am a liar".[1] And in this spirit he goes on to describe a transit to the moon, where a giant glass above a well enables him to watch his family members and listen in on their conversations on earth, and other such unlikely developments.

In many works in addition to the *A True Story*, Lucian sets himself the single-minded goal of exposing, by means of satire, the conceits, dissimulations, and frauds of his contemporaries: among them Cynics, Stoics, and Christians.[2] For this body of work, his place in the history has long been a question for scholars of ancient philosophy, with the most widespread view being that he is what might be called a "contributing outsider": he does not have the social identity of a philosopher, but he engages with the works and arguments of

those who do have this identity in a way that helped to shape and to make sense of contemporary debates and problems, and therefore is the focus of legitimate attention on the part of scholars of ancient philosophy seeking to better understand the intellectual contours of the period they study. One could not call him a “minor” figure, since in the history of Greek literature his contributions are enormous; but if he is major, relative to philosophy he is positioned squarely as an outsider.

(p. 792) Much the same might be argued of the French Jesuit Gabriel Daniel (Rouen, 1649–Paris, 1728), author of a remarkable Lucianic satire entitled *Voyage du monde de Descartes*, first published in 1690, and afterwards in several editions and translations. This work is Daniel’s earliest major intervention in public life and in learned controversy, but he would go on to produce a vast body of writing in several different areas, most importantly in philosophy, theology, and history.

2. The Life and Work of Gabriel Daniel

Daniel joined the Jesuit order in 1669, and studied theology at Paris from 1676 to 1680. He was named a professor of philosophy in 1683, and taught at Rouen, Bourges, and then Paris. Next, from 1688 to 1692, he went on to teach scholastic theology at the colleges of Caen and Rouen. From 1692 he was officially designated as *scriptor* or writer by the order, which freed him from all teaching responsibilities. It is this freedom that at least in part explains his prolific output. Daniel gained fame during his lifetime as the historiographer of France, appointed by Louis XIV, in which capacity he would produce two massive investigations of the subject: the *Histoire de France*, a three-volume work published in 1713,[3] and the two-volume *Histoire de la milice françoise* of 1721.[4] The latter work shows a surprising familiarity with, and an evident passion for, military strategy and the technical dimensions of combat. This is an unusual interest for a Jesuit, and reveals a wide-ranging, polymathic mind, but also, indeed, a character that is fond of battle in more ways than one. Daniel would never have an occasion to deploy his technical knowledge of military science. He would spend the last thirty-four years of his life at the order’s Professed House in Paris, busily writing, and never resorting to weapons more deadly than the pen.[5]

As a theologian Daniel is implicated in the raging debates of his era surrounding the question of grace and the legacy of Saint Augustine. These debates gave rise to his 1704 work, the *Défense de Saint Augustin*, written against Jean de Launoy’s portrayal some decades earlier of the saint and philosopher as a sort of *novator*.[6] It is in the wake of the publication of Charles Perrault’s 1688 *Parallèle des anciens et des modernes*,[7] which had been heavily influenced by Blaise Pascal’s pro-Jansenist *Lettres provinciales* of 1656–7,[8] that Daniel himself launches his own volley in defense of the Jesuits with two anti-Jansenist works, first his *Lettre touchant une ancienne hérésie renouvelée depuis peu* of 1690,[9] and later his *Entretiens de Cléandre et d’Eudoxe*,[10] written in the form of a dialogue and published in 1694. This latter work causes a controversy both within and out-

side of the (p. 793) Jesuit order, with some Jesuits wishing to see it suppressed, and others arguing for its translation and wide dissemination.

In 1693 the French Jansenist theologian Pasquier Quesnel would denounce Daniel in a tract entitled *Le Roman séditieux du nestorianisme renaissant, convaincu de calomnie et d'extravagance*.[11] Quesnel writes that "there is in the world a certain personality who believes he is a great prophet … He is a sort of adventure-seeker, who wishes at whatever price, by means of dazzling combat, to cause people to talk about him."[12] According to Quesnel, Daniel had been so disappointed at failing to elicit a response from Antoine Arnauld to his *Lettre touchant une ancienne hérésie renouvelée depuis peu* that he, Daniel, "decided to try [Arnauld] out in a different spot. He believed he could take aim at Cartesianism."[13] The result of this attempt was the 1690 *Voyage du monde de Descartes*, in which, Quesnel writes, Daniel "managed to perfectly capture the spirit of Lucian, as if he had written it himself. For in abandoning himself to his imagination, he freely threw out onto paper all the follies that it furnished him."[14]

Daniel would follow this work up six years later with a *Suite du voyage du monde de Descartes*,[15] which would read rather less like a satire and more like a straightforward philosophical treatise. In it he devotes considerable attention to a critique of the Cartesian denial of animal consciousness, as well as to further arguments against the "general system of the world of Descartes". A portion of the work is written as a dialogue, between Démocrate (*sic*) the Cartesian, and Aristippe the Peripatetic. To the end of this work is appended a curious tale, entitled *Histoire de la conjuration faite à Stokolm contre Mr. Descartes*, in which the various secondary qualities, virtues, occult forces, and even light and motion, all anthropomorphized, come together in the Swedish capital to conspire against Descartes, who has arrived there to propagate a philosophical system that denies their very existence. They end up appointing to Heat the task of assassinating the French philosopher by insinuating herself into his body and killing him with fever. The authorship of this treatise is unclear, and it is commonly attributed to a certain Gervaise de Montpellier. But it is unmistakably Danielian in tone and humor, and if Daniel did not have a hand in its composition, it seems likely that it was nonetheless written to flatter him by imitation.

3. The Fictional Conceit of the *Voyage*

It is in fact not entirely clear why Daniel decided to take on Cartesianism when he did. Indeed the doctrine he attacks in 1690 is hardly new, and there simply are no dogmatic Cartesians who have undergone no evolution away from the standard version of Descartes's philosophy in the thirty-six years since his death. It is unclear how, as Quesnel had suggested, such an effort could have riled Arnauld, who was no orthodox defender (p. 794) of the Cartesian views Daniel attacks, and in any case was not even interested in responding to Daniel's attacks on his *own* philosophy.

Jean-Luc Solère has plausibly identified Daniel as something of a Gassendian, not to the extent that Daniel explicitly defended "atomism or irreligion", for indeed he did not, but simply "in view of a certain defiance that he showed with regard to the great metaphysical constructions".[16] Daniel's skepticism was "affably detached", and like Gassendi's was triggered principally when it was confronted with "the spirit of the system". It was "Cartesian gigantism" that fascinated Daniel, in Solère's view, and that made the philosopher's most elaborate construction, that of *Le monde*, into a tempting target decades after it first appeared.[17] The differences between Gassendi and Daniel remain greater than the similarities, however. If we can extract any positive philosophy out of Daniel's negative attack on the Cartesian system, it is not only not explicitly atomistic, but indeed expresses almost a nostalgic longing for the time when an Aristotelian metaphysics of substance predominated. Throughout the *Voyage* Daniel clearly draws on Gassendi's attacks on Descartes, and a place of prominence is given to Gassendi in the plot of the story as well: it is in the valley that bears his name, on the surface of the moon, that the narrator lands: "We descended into Gassendi: this place seemed to us very fine and suitable. And, in a word, this is what we would expect of an abbot such as Gassendi, who possesses genius, art, knowledge."[18] We will return to philosophical lunar toponymy further on—for now it is important to note only the significance of this point of arrival.

If we cannot simply call Daniel a Gassendian, this is in large part because of the layers of fiction and fantasy through which Daniel filters his own philosophical views. It is clear nonetheless that Daniel wishes for his own work, in spite of its fictional trappings, to be taken as a serious work of philosophy. He maintains that, however much he would like to join Lucian in disowning everything he has invented about his lunar voyage, unfortunately he, Daniel, cannot, since what he has written is entirely true: not the plot of it, of course, but the ideas conveyed through the story. In this respect, while the narrator of the *Voyage* takes a different tack with respect to the truth than Lucian, and even claims that he must only tell the truth because he is himself a philosopher, by introducing his fantastical story with reference to Lucian, and by proceeding to tell a story that is plainly no more believable than that of the *True History*, we may understand that the narrative voice that opens the *Voyage* is one that is not meant to be taken seriously, but that is rather audaciously playing with the ideas of truth and fiction in a consciously Lucianic spirit. Daniel is by no means the only author of the era to make use of fictions modeled after those of Lucian in order to guide readers towards what are in the end sincere philosophical commitments. His work plainly resembles in this regard Margaret Cavendish's *Blazing World* of 1666,[19] which she wrote as a fictional supplement to her much drier *Observations upon Experimental Philosophy* of the same year.[20] The novel, (p. 795) she explained, was intended to seduce the reason into accepting true philosophical claims by appeal to the reader's fancy.

Daniel engages the fancy, but he also wishes to be taken seriously. A large part of his claim to deserve such treatment is based on the belief that *Le monde* itself is a wild flight of fancy. For Daniel, the line between philosophy and anti-philosophical satire cannot be so clear as it may have been for Lucian, since even a philosopher *par excellence*, such as Descartes, falls into the same sort of delirious wandering of the imagination as the fabu-

list does. Daniel has the upper hand then, not just as a fabulist but indeed as a philosopher, to the extent that he understands what he is doing. He knows that he is pursuing truth by means of fancy, rather than, as he supposes Descartes to be doing, mistaking fancy for truth.

Daniel sees the particular narrative features of Descartes's philosophy as borrowed from the book of Genesis. He gives voice to the old formula according to which the six days in which Descartes's *Meditations* recreate our knowledge of the world are a sort of epistemological echo of the divine creation. But he believes that it is in *Le monde* in particular that Descartes expresses his biblical ambitions. Daniel cites Johannes Amerpoel's *Cartesius Mosaïzans* of 1669,[21] but insists that the great difference between Descartes and Moses lies in the fact that the philosopher's world, once built, would be entirely factitious. "It's not a world", Daniel explains,

> but a chaos, everything there is in disorder and confusion. One cannot even move there. There is no light, there are no colors, nor heat, nor cold, nor dryness, nor humidity. Plants and animals do not live there. One not only has a right, but even an obligation to doubt everything. And even if you have a face like other men, and are made of flesh and bone as they are, and you walk, and eat, and sleep, and in a word you fulfill all the natural functions of a man—you are, I say, able to argue about this qualification.[22]

This is, of course, a summary of what Daniel takes to be the inadequacies of Descartes's philosophy as a whole, but it is worth focusing, in particular, on the first part of it: the belief that from a definition of matter as bare *res extensa*, one could never arrive at the world of qualitative diversity with which we are familiar.

In the *Voyage*, Descartes has in fact constructed this world, not just by means of a description in the book that bears that title, but in reality, in outer space. While we must forego a detailed plot summary here, it will be necessary at least to detail a few central aspects of the story in order to understand how Descartes, or indeed Descartes's ghost, arrives in outer space in the first place, and, in turn, what the record of his successes and failures there are. Central to the plot is the idea that Cartesianism is a sort of mystery cult, which reveals its true secrets only to select initiates. The secret of secrets is one that this cult has in common with the peasant sorcerers of sixteenth-century Friuli so vividly described by Carlo Ginzburg: Cartesians are, namely, *benandanti*, night-walkers, who are (p. 796) able to leave their bodies behind at will, and go travelling around as disembodied souls.[23] In this state, they are freer and swifter, they can even travel, Daniel tells us, from one end of France to the other in under an hour and a half. The significance of this ability of the Cartesians, on Daniel's telling, is that it is a consequence of Descartes's own expectation of experimental confirmation for his philosophical claims, thus of his own deep commitment to empiricism. If the mind and the body are distinct and non-overlapping, and thus potentially separable, then let us see them separated. If not, Daniel insists that Descartes would not have committed himself to a thoroughgoing dualism. The need for experimental confirmation, in turn, serves as motivation for Descartes's disembodied soul

to move to outer space and to attempt to realize the fable he had told in his cosmogonical treatise, as we will discuss more fully below: only if he can in fact build it will Daniel's Descartes be convinced that the world he has imagined is in fact based on the correct philosophical principles.

Descartes himself learns the practical means of mind–body separation, on Daniel's telling, when he comes across a strange substance, and decides to smoke it. He develops a habit, and so goes night-travelling with increasing frequency. The habit only intensifies when he moves to Sweden, and he experiences a homesickness that is easily remedied by quick nocturnal trips back to France. He begins to share the secret, in part as a way of convincing his followers of the truth of philosophical dualism. When Descartes supposedly dies in 1654, moreover, he is in fact out on just such a trip, and finds himself effectively locked out of his own body, which will be interred in Stockholm, then disinterred and sent back to France. His ghost, now permanently separated from his corrupting body, is free to travel the cosmos without end.

The narrator of Daniel's tale meets an old man who has kept the secret of the Cartesian sect, and who remains in touch with Descartes's disembodied soul, while refusing to speak with any of the living impostors who call themselves Cartesians. The old man invites the narrator, a sort of stand-in for Daniel himself, to take a trip with him. "I was very worried", the narrator relates, "that this was some sort of sorcery and magic, and that under the pretext of taking me to Descartes' World, they were in fact taking me to a sabbath."[24]

It is at this point that Daniel undertakes a puzzling excursus to tell us the tale of an African slave who had been accidentally initiated into the great Cartesian mystery. This slave had been the valet of none other than Henricus Regius, Descartes's great adversary. After the falling-out between Descartes and the Utrecht professor of medicine, the latter, "whose manners were not always those of the most gallant man in the world, … took his vengeance against him, and displayed his contempt for the very thing that Descartes valued the most, by teaching the secret to this" slave.[25] A terrible incident ensues. The slave's soul goes out wandering, and leaves his body asleep in a field. A girl's honor is violated nearby, and a mob forms. They find the physical part of the sleeping slave, and, as Daniel writes, "the machine of his body is determined into motion by" the noise they make. "The strong impression that the presence of these armed men made on its organs" (p. 797) cause it to flee.[26] They catch him and interrogate him, but in the absence of a soul, his body is unable to say anything very coherent. Soon enough, he is hanged. The soul returns, and, like Descartes before him, finds he no longer has a body to rejoin. What happens next is remarkable, and worth quoting at length:

> Most separated souls that move about throughout the expanse of the world, being philosophers' souls, and souls of importance, who, in an assembly that the most formidable among them had summoned, had declared to be true that philosophical opinion according to which not all souls are of the same species, did not wish to accept that the soul of an ignorant Negro should have the same privileges as

> they themselves, and chased him away wherever he appeared. In the end, for the sake of his happiness, he dared to leave our vortex, and passed to the place where the spirit of M. Descartes was meditating. The spirit had compassion for it, and permitted it to stay with him.[27]

In his mockery, Daniel inadvertently highlights what may be a strong argument in favour of metaphysical dualism: that it can serve as the grounding of an anti-racist philosophical anthropology.[28] Descartes's soul befriends the African's soul, since Descartes is the only philosopher for whom a person is not in any respect a body, and it is, after all, only bodies, and not souls, that have races.

This excursus in Daniel's work might seem to have taken us away from its central concerns, yet it is worth mentioning to the extent that it shows the degree to which Daniel supposes the automaton problem to be one of the most serious undesirable consequences of the world Descartes hopes to construct: if dualism is correct, Daniel worries, then souls are not necessary for the life and functioning of animal and human bodies. Absurdities may thus result, such as bodies committing crimes without souls inhering in them that may be held responsible for the crimes. In fact, though, Daniel believes that such a situation could never arise: the automaton problem shows for him that one of the problems with Descartes's physics is that, if it is all we have to rely on, then we don't have nearly enough from which to build an entire world.

This same general concern holds no less for the qualitative variety of the external world than it does for the Cartesian model of the human being. Descartes had desired to treat the generation of the human being "in the same style as the rest", as the philosopher writes in the *Discours de la méthode*,[29] that is, to account for it in the same terms as the orbit of the planets, the rising and lowering of the tides, and everything else in the physical world. Daniel believes that one of the absurd conclusions of such an approach would be that it would place human beings, at least qua corporeal beings, on an ontological par with planets and vortices. This is indeed precisely what Descartes wants, but Daniel fears in this a sort of radical levelling effect, where gradations of better and worse, alongside other qualitative gradations such as hotter and colder, could no longer be obtained.

(p. 798) 4. Daniel's Critique of Vortex Theory

Descartes goes to the Third Heaven, beyond the moon, to build his world. His voyage is meant as an experimental confirmation of the view that matter is pure extension: since the heavens are extended, and matter just is extension, the heavens must be filled with matter. But since this matter is totally unformed, Descartes, or what is left of him, will be free to do whatever he wishes with it. "He was not worried", Daniel writes,

> about being able to put it (that is to say this matter) to work for him, and he determined that in separating it, in acting upon it according to principles, he could

> make a world entirely similar to this one, except that it could not have true human beings, but only Automatic machines that are similar to human beings.[30]

If we focus on the philosophical commitment behind this passage, we might now understand Daniel as holding that it is *only* the problem of life that remains unassimilable in Descartes's philosophy, the only thing that cannot be explained "in the same style as the rest". Elsewhere, however, Daniel insists that Descartes not only could not deliver a world of spurious animals and humans, of pseudo-life-forms, but indeed could not even give us a sustainable world of solid and liquid bodies in stable relations to one another. Vortex theory, he maintains, is incoherent. Daniel has his fictional Descartes describe the vortices as follows:

> Imagine a round or oval-shaped space for matter, which I divide into a thousand or ten thousand small parts. Imagine that these small parts make as many pirouettes as I cause them to turn around their axle or center; and what it is that in this way I cause to turn at the same time around the center of this round or oval-shaped space is what I call a Vortex.[31]

Each vortex, Daniel has Descartes go on to explain, is itself "a sort of heaven", at the center of which "an astral body or fixed star is constituted". But this does not mean that each vortex amounts to a "world apart", since there quickly emerge sub-vortices, so to speak, that play a part in the orderly motion of a larger vortex:

> Thus originally constituting twenty vortices in space … I will make twenty fixed stars: but from these twenty fixed stars you will be surprised and pleased to see that there will only be one that will represent your sun: that all the others will become either planets or comets.[32]

From this very minimal and idealized account, numerous problems arise. As Descartes sets his world into motion, a series of glitches appear. Comets, for example, which are (p. 799) described as "stars that have lost their vortex" and so pass from one vortex to another accumulating encrusted solid matter, are a particular harbinger of instability in the system. It is beyond the scope of this short chapter to summarize all such problems ensuing from this initial definition of vortices, but it is enough to know that, in general, Daniel supposes that the stability and regularity of the bodies of our own solar system could not hold for long, that solid matter would accumulate and curtail the regular orbit of satellites, and, most damagingly of all, that the fluid boundaries between vorticial worlds would bleed into one another and the distinctness of individual vortices would collapse.

Again, Daniel seems uncertain whether Descartes is able to give us an impostor world that seems real but in fact only consists in semblances of living beings, or whether by contrast he can only give us an unstable fluid mess. He describes both possible scenarios as "chaos". Either way, Daniel is offering us a subtle subversion of the science fiction genre as it had been deployed previously. Other authors had gone to outer space to find order, and to critique the inadequacy of earthly customs and laws from a distant vantage. Daniel sends a caricatured version of Descartes into outer space, to have him fail there,

to have him build a chaos next to which the earthly order, with its living, embodied, inseparable beings, seems to be doing just fine.

Daniel supposes, in sum, that Descartes's failure in the Third Heaven is a direct consequence of his reduction of metaphysics to physics. Daniel does not believe that Descartes has a positive metaphysics to offer. Daniel supposes, in fact, that it is precisely Descartes's methodological skepticism that causes him to banish the metaphysical principles that he, Daniel, supposes are necessary in order to build up a non-chaotic world. Though most of Daniel's work is negative satire rather than the proposal of a systematic positive alternative, we are given a rare glimpse of what some of these metaphysical principles might be in a passage of the *Voyage* in which Daniel complains of the overwhelming popularity of "the new philosophy":

> They are barely printing courses of philosophy according to the method of the schools anymore, and almost all of the works of this sort that are appearing now in France are treatises of physics, which presuppose the principles of the new philosophy. Books that treat of the universal, of metaphysical degrees, of the being of reason, are frightening to booksellers today.[33]

In Daniel's view, Descartes is trying to pass off a physical theory as a metaphysical one, and this is the ultimate reason for his extremely implausible account of the formation of complex natural bodies. Descartes is portrayed as a rigid empiricist, who only accepts what can be shown through experience, and who rejects arguments from first principles. Daniel believes that for Descartes only something like maker's knowledge is sufficient: only by being able to construct a world for himself, or to show the steps by which a world may be constructed, will Descartes arrive at a proper understanding of the principles governing nature. This is the rationale, moreover, for the particular conceit of Daniel's (p. 800) satire: the figure of a fictional Descartes attempting to construct his own world from scratch. If he thinks he knows how to obtain everything in nature without "the universal", without "metaphysical degrees" or "the being of reason", then just let him try. What ensues is absurd, because the theory itself, which separates physics from what Daniel is able to recognize as metaphysics, is itself absurd.

5. Astronomy, Cosmology, and the Harlequin Principle

Descartes, as we have seen, absconds from the moon to build his world in the Third Heaven, leaving behind him, on the lunar surface, the souls of other luminary philosophers, including Plato, Aristotle, and, again, Gassendi. Daniel was aware of, and indeed mentioned in the *Voyage*, the recent work of Giovanni Battista Riccioli and Francesco Grimaldi, both Italian Jesuits, in which (Riccioli in the *Almagestum novum* of 1651[34]) features of the lunar surface were given the names of philosophers. In particular they had given the names of Kepler, Galileo, and Lansbergius to craters, which these lunar features still bear today. "The relief that we see in the moon", Daniel observes, "consists in part in seas and in part

in continents [*terres*], divided among the most illustrious mathematicians and philosophers, as we see in the maps of that country made by Grimaldi and certain others".[35] Thus Daniel inscribes his fantasy of the post-mortem migrations of philosophers' souls into the very real project of early modern selenology.

The moon had been since antiquity conceptualized as marking out the boundary between the sphere of generable and corruptible beings below it, on the one hand, and the immortal beings beyond it on the other. Occupying this liminal cosmological space, in the early modern period it became the perfect location for natural-philosophical and astronomical thought experiments, or, to put this another way, it became a popular setting for many of the era's most important works of science fiction. Johannes Kepler's *Somnium* of 1634 begins,[36] like the work of Lucian, Cavendish, and Daniel himself, with a quest of initiation that leads to a lunar transit. No sooner does the German astronomer's hero, Duracotus, arrive on the moon, than he begins engaging in a sort of situational astronomy: a description of what the cosmos would look like if we were lunar rather than terrestrial beings. In Savinien de Cyrano de Bergerac's *Histoire comique des États et Empires de la Lune* of 1657,[37] a work that would significantly influence Daniel's *Voyage*, we are treated to what is surely the most exemplary and profound work of early modern lunar fiction.[38] Cyrano returns throughout the work to the question of whether (p. 801) or not the moon should count as a world unto itself, or whether rather it is simply a somewhat distant body within one and the same world as the earth. This question would return again in Anne Mauduit Nolant de Fatouville's 1684 play, *Arlequin empereur dans la lune*.[39] This work would be the source of what would later become a sort of motto for G. W. Leibniz: "Always and everywhere it's just as it is here [*c'est tout comme ici partout et toujours*]."[40] This is Leibniz's corollary to Descartes's conviction that everything must be explainable "in the same style" as everything else. The moon's orbit does not trace out a boundary between two fundamentally different cosmological realms, in each of which two fundamentally different sets of laws apply. And if there is traffic between the earth and the moon, this is in the end no different from travel across the ocean: the moon is no more a "world" than America is.[41] There is thus no reason, if one adopts what might be called the "Arlequin Principle", that things are always and everywhere the same, to think of the beings that inhabit the moon as disembodied spirits or as ghosts. Part of Daniel's satire, one might suggest, is to play on the new possibility that Riccioli and Grimaldi open up, making it unclear whether encountering "Gassendi" or "Aristotle" on the lunar surface involves a meeting with the soul of the philosopher himself, or simply impact with a crater.

In turn, if there really is only one world, nor is there any reason why the moon and earth should enjoy exclusive traffic with one another, and so there is no reason for Descartes's ghost to stop at the moon, rather than going beyond it. In this respect, while Daniel is contributing to the very popular genre of early modern fiction, he is also to be credited with innovating the subgenre of, so to speak, superlunar fiction, imagining Descartes's soul going (to paraphrase a later slogan) where no soul has gone before. The possibility of even conceiving such an odyssey depended on a new model of the cosmos, as unified and homogeneous, as subject everywhere to the same sorts of explanation. Such a model was part of Descartes's great legacy. Though Daniel set out to satirize this legacy, and though

Descartes's construction project in the Third Heaven is made to fail, we also see in the *Voyage* an accurate reflection of some of the most important implications of Descartes's thought: so accurate in fact that here the satire, as in other great works in this genre, seems at times indistinguishable from homage.

References

Aït-Touati, Frédérique (2011), *Contes de la Lune: Essai sur la fiction et la science modernes*. Paris: Gallimard.

Amerpoel, Johannes (1669), *Cartesius mosaïzans, seu Evidens & facilis conciliatio Philosophiae Cartesii cum historia Creationis primo capiti Geneseos per Mosem tradita*. Leovardiae: Pro Haeredibus Thomae Luyrtsma.

(p. 802) Cavendish, Margaret (1668a), *The Description of a New World, called The Blazing-World*. London: A. Maxwell.

Cavendish, Margaret (1668b), *Observations upon Experimental Philosophy*. London: A. Maxwell.

Cyrano de Bergerac, Savinien (1657), *Histoire comique … contenant les États et Empires de la Lune*. Paris: Charles de Sercy.

Daniel, Gabriel (1690a), *Lettre touchant une ancienne hérésie renouvelée depuis peu touchant la personne de Jésus-Christ. Preuve de l'hérésie du traducteur des homélies de S. Jean Chrysostome sur les épîtres de S. Paul*. Paris: Anheline.

Daniel, Gabriel (1690b), *Voyage du monde de Descartes*. Paris: Chez la Veuve de Simon Bénard.

Daniel, Gabriel (1694), *Entretiens de Cléandre et d'Eudoxe, sur les Lettres au provincial*. Cologne: Pierre Marteau.

Daniel, Gabriel (1696), *Suite du voyage du Monde de Descartes, ou Nouvelles difficultez proposées à l'auteur du Voyage du Monde de Descartes, avec la Réfutation de deux défenses du Système général du Monde de Descartes* (including the *Histoire de la conjuration faite à Stokolm contre Mr. Descartes*). Amsterdam: Pierre Mortier.

Daniel, Gabriel (1704), *Défense de Saint Augustin, contre un livre qui paroît depuis peu sous le nom de M. De Launoy, où l'on veut faire passer ce saint Pere pour un Novateur*. Paris: Nicolas le Clercy and Jacques Josse.

Daniel, Gabriel (1713), *Histoire de France, depuis l'établissement de la monarchie française dans les Gaules*, 3 vols. Paris: Jean-Baptiste Delespine.

Daniel, Gabriel (1721), *Histoire de la milice françoise et des changements qui s'y sont faits depuis l'établissement de la monarchies dans les Gaules jusqu'à la fin du règne de Louis le Grand*, 2 vols. Paris: Jean-Baptiste Coignard.

Gay, Jean-Pascal (2011), *Morales en conflit: Théologie et polémique au Grand Siècle (1640–1700)*. Paris: Les Éditions du Cerf.

Ginzburg, Carlo (1966), *I benandanti: Richerche sulla stregoneria e sui culti agrari tra Cinquecento e Seicento*. Einaudi: Turin.

Heyndels, Ralph (1978), “Un jésuite dans la lune à la fin du XVIIe siècle. Discours philosophique et diégétique dans le *Voyage du monde de Descartes* (1690), du père Gabriel Daniel”, *Recherches sur le XVIIe siècle* 2: 17–31.

Hutton, Sarah (2003), “Sciences and Satire: The Lucianic Voice of Margaret Cavendish’s *Description of a New World Called the Blazing World*”, in Line Cottegnies and Nancy Weitz (eds.), *Authorial Conquests: Essays on Genre in the Writings of Margaret Cavendish*. London: Associated University Press, 161–78.

Kepler, Johannes (1634), *Mathematici olim imperatorii Somnium, seu Opus posthumum de astronomia lunari*. Francofurti: Impressum partim Sagani Silesiorum.

Leibniz, G. W. (1849–63), *Die philosophischen Schriften von G. W. Leibniz*, ed. C. I. Gerhardt, 7 vols. Berlin: Weidmannsche Buchhandlung.

Lucian (1913), *Phalaris. Hippias or The Bath. Dionysus. Heracles. Amber or The Swans. The Fly. Nigrinus. Demonax. The Hall. My Native Land. Octogenarians. A True Story. Slander. The Consonants at Law. The Carousal (Symposium) or The Lapiths, trans*. A. M. Harmon. Cambridge, MA: Harvard University Press.

Nolant de Fatouville, Anne Mauduit (credited here as Monsieur ***) (between 1765 and 1814 [1684]), *Arlequin Empereur dans la Lune*. Troyes: Garnier.

Parageau, Sandrine (2006), “La satire des sciences dans *Observations upon Experimental Philosophy* et *The Blazing World* (1666) de Margaret Cavendish”, in *Études Épistémè* 10: 75–98.

(p. 803) Pascal, Blaise (1867 [1656–7]), *Texte primitif des Lettres provinciales, d’après un exemplaire in quarto (1656–1657) où se trouvent des corrections en écriture du temps*. Paris: Hachette.

Perrault, Charles (1688), *Parallèle des anciens et des modernes, en ce qui regarde les arts et les sciences*, 2 parts in one vol. Paris: Jean-Baptiste Coignard.

Quesnel, Pasquier (1693), *Le roman séditieux du nestorianisme renaissant, convaincu de calomnie et d’extravagance*. Paris.

Riccioli, Giovanni Battista (1651), *Almagestum novum astronomiam veterem novamque complectens*. Bononiae: Ex Typographia Haeredis Victorij Benatij.

Romeri, Luciana (2001), “Idiotai et philosophoi à la table de Lucien”, *Revue des études grecques* 114: 647–55.

Smith, Justin E. H. (2015), *Nature, Human Nature, and Human Difference: Race in Early Modern Philosophy*. Princeton: Princeton University Press.

Smith, Justin E. H. (2017), “What Is a World? Deception, Possibility, and Fiction from Cervantes to Descartes”, *Journal of Early Modern Studies* 5 (2): 9–27.

Solère, Jean-Luc (1994), “Un récit de philosophie-fiction: Le *Voyage du Monde de Descartes du Père Gabriel Daniel*”, *Uranie. Mythes et littératures* 4: 153–84.

Notes:

([1]) Lucian 1913: I.4, 253.

([2]) See, e.g., Romeri 2001, Nesselrath 1998.

([3]) Daniel 1713.

([4]) Daniel 1721.

([5]) For a detailed account of Daniel’s work within the context of Jesuit polemics, see Gay 2011: chs. 6–7.

([6]) Daniel 1704.

([7]) Perrault 1688.

([8]) Pascal 1867 [1656–7].

([9]) Daniel 1690a.

([10]) Daniel 1694.

([11]) Quesnel 1693.

([12]) Quesnel 1693: 2.

([13]) Quesnel 1693: 2.

([14]) Quesnel 1693: 2.

([15]) Daniel 1696.

([16]) Solère 1994: 158.

([17]) Solère 1994: 158.

([18]) Daniel 1690b: 153–4.

([19]) Cavendish 1668a. On the Lucianic inspiration for Cavendish’s science fiction work, see Hutton 2003; Parageau 2006.

([20]) Cavendish 1668b.

([21]) Amerpoel 1669.

([22]) Daniel 1690b: 12–13.

([23]) See Ginzburg 1966.

([24]) Daniel 1690b: 64.

([25]) Daniel 1690b: 75.

([26]) Daniel 1690b: 75–6.

([27]) Daniel 1690b: 76–7.

([28]) See Smith 2015, especially ch. 2.

([29]) AT VI.45.

([30]) Daniel 1690b: 55.

([31]) Daniel 1690b: 315–16.

([32]) Daniel 1690b: 317.

([33]) Daniel 1690b: 267.

([34]) Riccioli 1651.

([35]) Daniel 1690b: “Table des matières”, no page numbers.

([36]) Kepler 1634.

([37]) Cyrano de Bergerac 1657.

([38]) For a thorough survey of early modern lunar fiction and its philosophical importance, see Aït-Touati 2011. On the philosophical significance for Daniel in particular of the lunar setting of the *Voyage*, see Heyndels 1978.

([39]) Nolant de Fatouville 1765–1814 [1684].

([40]) *Éclaircissement sur les natures plastiques et les principes de vie et de mouvement* 3, in Leibniz 1849–63: VI.548.

([41]) On ‘world’ as a polyvalent theoretical term in early modern philosophy, see Smith 2017.

Justin E. H. Smith

Paris Diderot University (Paris 7)

Physics and Metaphysics in Descartes and Newton

Andrew Janiak

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Abstract and Keywords

Isaac Newton had a vexed relationship with his most important immediate predecessor in mathematics and philosophy, René Descartes. He was typically loath to admit the importance of Cartesian ideas for the development of his own thinking in mathematics and natural philosophy. For this reason, generations of students and scholars relying on Newton's published work had little inkling of Descartes's significance. This unfortunate fact was compounded by the tendency of philosophers to focus on the *Meditations* or the *Regulae* in their scholarship, for it was Descartes's *Principles* above all that influenced Newton's thinking as a young man. With the discovery of a previously unpublished manuscript amongst Newton's papers by two famous historians of science in the middle of the twentieth century, everything changed. The manuscript, now known as *De Gravitatione* after its first line, illustrates the astonishing care with which Newton read the *Principles*, focusing his critical acumen on Descartes's understanding of space, time, and motion. These criticisms of Descartes, in turn, shine light on otherwise opaque passages in Newton's most significant published discussion of space, time, and motion, the Scholium in *Principia mathematica*. Indeed, the very title of the latter work represents both an homage to, and a swipe at, Descartes's work: Newton would offer *mathematical* principles of natural philosophy to replace Descartes's qualitative account. It is not a stretch to say that Newton saw further because he stood on Descartes's shoulders, even if he wouldn't admit it publicly.

Keywords: Isaac Newton, gravity, space, time, motion

(p. 804) ISAAC Newton had a vexed relationship with his most important immediate predecessor in mathematics and philosophy, René Descartes. He was typically loath to admit the importance of Cartesian ideas for the development of his own thinking in mathematics and natural philosophy, preferring to align himself with figures like Galileo, Wallis, or Huygens. For this reason, generations of students and scholars relying on Newton's published work had little inkling of Descartes's significance. This unfortunate fact was compounded by the tendency of philosophers to focus on the *Meditations* or the *Regulae* in

their scholarship, for it was Descartes's *Principles* above all that influenced Newton's thinking as a young man. But with the discovery of a previously unpublished manuscript amongst Newton's papers by two famous historians of science in the middle of the twentieth century, everything changed (Newton 1962). The manuscript, now known as *De Gravitatione* after its first line, illustrates the astonishing care with which Newton read the *Principles*, focusing his critical acumen on Descartes's understanding of space, time, and motion. These criticisms of Descartes, in turn, shine light on otherwise opaque passages in Newton's most significant published discussion of space, time, and motion, the Scholium in *Principia mathematica*. Indeed, the very title of the latter work represents both an homage to, and a swipe at, Descartes's work: Newton would offer *mathematical* principles of natural philosophy to replace Descartes's qualitative account. It is not a stretch to say that Newton saw further because he stood on Descartes's shoulders, even if he wouldn't admit it publicly.

During his early years at Trinity College, Cambridge, Newton encountered a wide range of Descartes's works. Descartes was not part of the curriculum in Cambridge in those days, but enterprising young students like Newton were quickly introduced to (p. 805) Cartesianism by their mentors, and indeed the term 'Cartesianism' was coined by Newton's friend and mentor Henry More right around this time. Newton read everything from the Latin van Schooten edition of the *Géometrie* to the *Meditations*—in which he carefully penned the author of each anonymous objection—to the *Principles* (see Domski 2003; Guicciardini 2009). Although he engaged with the *Meditations* only minimally, he spent considerable time analyzing, and eventually attempting to refute, some of the key doctrines in the *Principles*. He never seemed to take seriously the Aristotelian doctrines that he would have learned about in college, and in that sense, Descartes successfully "replaced Aristotle as the foil against which British physics tested its mettle" (Heilbron 1982: 30).

Newton's public-facing attitude toward Descartes was twofold: on the surface, he largely ignored his French predecessor, but underneath, scholars can see the snub in places where Newton went out of his way to avoid giving Descartes the credit he deserved. This is perhaps most glaringly evident in a famous passage in the Corollaries to the Laws of Motion. Having studied the *Principles* in great depth in his youth, Newton was perfectly well aware that in part II of that work, Descartes outlined two laws of nature that together constitute a very early and important formulation of the principle of inertia, expressed more exactly in Newton's first law. Rather than mentioning Descartes, however, Newton aligns himself less plausibly with Galileo. He writes:

> The principles I have set forth are accepted by mathematicians and confirmed by experiments of many kinds. By means of the first two laws and the first two corollaries, Galileo found that the descent of heavy bodies is in the squared ratio of the time and that the motion of projectiles occurs in a parabola, as experiment confirms, except insofar as these motions are somewhat retarded by the resistance of the air.

> (Newton 1999: 424)

There is a genuine question of whether Galileo in fact employed anything akin to those two laws and two corollaries in his work on free fall, and indeed, whether he thought in terms of the laws of nature more generally. Regardless, it's obvious that Newton snubs Descartes: after mentioning Galileo, he skips Descartes and discusses the famous work on impact from the 1660s by Wren, Wallis, and Huygens.

Newton's failure to refer to Descartes, explicitly or even obliquely, within the published text of *Principia mathematica*, coupled with the tendency of philosophers to ignore Descartes's own *Principia*, led to considerable confusion about some key passages in Newton's famous discussion of space, time, and motion. It did not help that philosophers tended to focus especially on the discussion of absolute space, a tendency that is made more understandable by the fact that nearly every major eighteenth-century philosopher, from Berkeley to Leibniz to Du Châtelet to Kant, vigorously opposed the idea of absolute space. As soon as one realizes that Newton's Scholium on space and time is often focused on rebutting Descartes's views from part II of the *Principles*, entire passages become clearer. For instance:

(p. 806)

> It is a property of motion that parts which keep given positions in relation to wholes participate in the motions of such wholes. For all the parts of bodies revolving in orbit endeavor to recede from the axis of motion, and the impetus of bodies moving forward arises from the joint impetus of the individual parts. Therefore, when bodies containing others move, whatever is relatively at rest within them also moves. And thus true and absolute motion cannot be determined by means of change of position from the vicinity of bodies that are regarded as being at rest. For the exterior of bodies ought to be regarded not only as being at rest but also as being truly at rest. Otherwise all contained bodies, besides being subject to change of position from the vicinity of the containing bodies, will participate in the true motions of the containing bodies and, if there is no such change of position, will not be truly at rest but only be regarded as being at rest. For containing bodies are to those inside them as the outer part of the whole to the inner part or as the shell to the kernel. And when the shell moves, the kernel also, without being changed in position from the vicinity of the shell, moves as a part of the whole.
>
> (Newton 1999: 411)

This long paragraph often puzzled scholars: why would Newton bother arguing that if I throw a peanut still in its shell, the peanut inside and the shell around it both move? Who would deny that? And in any event, what does that strange discussion have to do with establishing something about absolute space? The temptation is to throw up one's hands

and avoid the paragraph altogether, even though it constitutes a decent percentage of a text that is only about seven pages long.

Once we bring the unmentioned Descartes's often ignored *Principles* into the discussion, we quickly realize that Newton is paraphrasing his predecessor, and at times practically quoting him. In the *Principles* (AT VIII-1: 53–4), Descartes defines the proper motion of a body as follows: "motion is the transfer of one piece of matter, or one body, from the vicinity of the others which immediately touch it, and which we consider to be at rest, to the vicinity of others [*ex vicinia eorum corporum, quoe illud immediate contingent & tanquam quiescentia spectantur, in viciniam aliorum*]". Hence when Newton discusses the idea of "regarding" a body as at rest, he shows the problems with applying the Cartesian definition of proper motion to actual cases. Similarly, his otherwise peculiar comment about the kernel and its shell is designed to undermine the Cartesian view, for Descartes denies that a kernel inside a shell moves if the shell moves. According to Descartes, whether the kernel moves is a function of its relationship with its vicinity, and since the shell is its vicinity, it does not experience a transfer to another vicinity, and therefore does not move, properly speaking.

Lest one think that Newton is merely nitpicking here, he also makes it clear, earlier in the paragraph quoted above, that Descartes's conception of proper motion makes it terribly difficult to understand the planetary orbits, and indeed, may even stand in some tension with Descartes's own vortex theory of those orbits. For example, consider the earth's motion. If the earth is being carried through the heavens by the vortex surrounding it, as Descartes suggests in sections 26–9 of part III of the *Principles*, then we ought to say, as Newton claims above, that all the parts of the earth endeavor to recede from the axis of motion. Indeed, as Newton well knew—although he did not let on in his discussion (p. 807) citing Galileo et al. above (!)—Descartes's own first two laws indicate that a body revolving in a circle endeavors to recede from the center of the circle it describes. But Descartes's understanding of proper motion spoils this point. Specifically, it undermines the idea that all the parts of the earth are moving when the earth is moving, since it treats the inside parts of a body differently than its surface. For if we ask what the vicinity of the center of the earth is, we find that it's the surrounding portion of the earth, and Descartes's view of motion prevents us from thinking that both of them move together. And yet as they orbit the sun, they should both be understood as receding from the axis of motion, which Newton takes to be an obvious sign that they are all undergoing the same true motion.

Descartes might reply: but the earth is a single body, and its proper motion must be understood in terms of its relationship with its vicinity, in this case the vortex surrounding it. Newton had a ready retort to this reply, one outlined in detail in *De Gravitatione*. In fact, there are several aspects to his likely retort that can be untangled. First, if the earth is truly moving, as the emerging consensus in natural philosophy would indicate, then it seems problematic to regard its proper motion as a function of its relationship with its vicinity, for as the vortex "carries" the earth through the heavens, it continually surrounds it, which means that the earth is not moving, properly speaking. Second, suppose

that Descartes is right that the earth is not in fact moving, properly speaking; in that case, Newton objects to the fact that Descartes attributes to the earth a tendency to recede from the sun, for Newton takes that tendency to be a sign that the earth is in fact moving (Newton 2014: 29). And finally, if the earth has a tendency to recede from the sun, we should also concede that the parts of the earth have the same tendency—to recede from the axis of motion—and yet, once again, that might be hard to square with Descartes's understanding of proper motion, for the Cartesian view seems to undermine the idea that a moving body's parts also move with that body. To be fair, Descartes might still believe that he can get more mileage out of the claim that the earth, or any moving thing, is a single body, and that it is only the motion of that single body that is a function of its changing relations with its vicinity. But Newton took his point in the paragraph above to be quite broad: if it's true that a body's motion is a function of its change in relations to its vicinity, and if an orbiting body in particular recedes from the axis of motion, as Descartes's own laws indicate, then it seems that Descartes must deny that the parts of that body also recede from the axis of motion. For if they did recede, that would mean that they are moving, but that idea would conflict, in turn, with the claim that only the single body is moving, for its parts are not changing their relation to their vicinity.

Newton's dissatisfaction with the Cartesian concept of motion led him to develop his own novel, and ultimately very controversial, conception of space and time. He begins with the thought that the laws of motion—even Descartes's own laws—tell us that a body moving rectilinearly will continue moving until it experiences a causal interaction with something else, and that a body moving in a curve must be interacting causally with something else. The latter body will exhibit a tendency to recede from the axis of motion. This means, first and foremost, that according to the laws of nature, the true (p. 808) motion of a body should not be understood as a function of its relations to other bodies. The reason is not hard to find: we cannot change a body's rectilinear motion by changing its relations to other bodies, say by bringing them alongside it, or having them travel in parallel with its rectilinear path. Only a causal interaction will alter its true motion. This means, according to Newton, that Descartes is wrong to think that a body's true motion is a kind of relative motion; instead, true motion should be understood as non-relative, or "absolute". Finally, in order to express the idea that the true motion of a body is its absolute, rather than its relative, motion, we must posit something to express the idea of absolute motion. A truly moving body should be understood as changing its location within absolute space, whether it changes relations to other bodies or not. Absolute space is born!

Of course, no self-respecting Cartesian would be able to accept the idea that space itself —an indefinitely vast, perhaps infinite, Euclidean magnitude—can be understood as independent of bodies. After all, space considered in itself is merely a vast extension, and extension is a property, so it must be understood as a property borne by some substance, or by a set of substances. Space independent of body is just a metaphysical fiction, or rather, a fiction that runs afoul of basic metaphysical facts. Newton's reply to this objection is characteristic: rather than engaging directly with Cartesian metaphysics, he decides instead to employ a *gedankenexperiment* to convince his Cartesian interlocutors and readers that their understanding of true motion is problematic. This involves his famous buck-

et. Unfortunately, for generations philosophers who did not realize that Descartes was Newton's target, rather than Leibniz for instance, were confused by the so-called bucket experiment. Did it really demonstrate that space is absolute? How could it do so? Since Descartes isn't mentioned by name here, one perhaps cannot blame philosophers for misunderstanding the example. But as soon as one recalls Descartes's discussion of true motion, which involves the idea that true motion is a species of relative motion (involving a body's changing vicinity), the true purpose of the example becomes clear.

> If a bucket is hanging from a very long cord and is continually turned around until the cord becomes twisted tight, and if the bucket is thereupon filled with water and is at rest along with the water and then, by some sudden force, is made to turn around in the opposite direction and, as the cord unwinds, perseveres for a while in this motion; then the surface of the water will at first be level, just as it was before the vessel began to move. But after the vessel, by the force gradually impressed upon the water, has caused the water also to begin revolving perceptibly, the water will gradually recede from the middle and rise up the sides of the vessel, assuming a concave shape (as experience has shown me), and, with an ever faster motion, will rise further and further until, when it completes it revolutions in the same times as the vessel, it is relatively at rest in the vessel. The rise of the water reveals its endeavor to recede from the axis of motion, and from such an endeavor one can find out and measure the true and absolute circular motion of the water, which here is the direct opposite of its relative motion. In the beginning, when the relative motion of the water in the vessel was greatest, that motion was not giving rise to any endeavor to (p. 809) recede from the axis; the water did not seek the circumference by rising up the sides of the vessel but remained level, and therefore its true circular motion had not yet begun. But afterward, when the relative motion of the water decreased, its rise up the sides of the vessel revealed its endeavor to recede from the axis, and this endeavor showed the true circular motion of the water to be continually increasing and finally becoming greatest when the water was relatively at rest in the vessel. Therefore, that endeavor does not depend on the change of position of the water with respect to surrounding bodies, and thus true circular motion cannot be determined by means of such changes of position.
>
> (Newton 1999: 412–13)

Newton's fastidious presentation of this example is intended to show that we should not follow Descartes in thinking that true motion is a species of relative motion, one involving the "surrounding bodies" (or vicinity) of the body said to be moving. For as the bucket shows, the concavity of the water's surface indicates its endeavor to recede from the axis of motion, and as Descartes's own laws indicate, such an endeavor means that the body is, as it were, endeavoring to move rectilinearly, so it has true motion. But its true motion, in turn, does not involve its changing relations to other bodies, since the water remains at rest relative to the bucket (its vicinity). Hence the true motion of a rotating body should not be understood as consisting in its relative motion. Far from an attempt at "proving"

that space is absolute, Newton is trying to show his Cartesian-inclined readers that they should understand true motion differently than Descartes did in his *Principles*.

Lest anyone miss the implications of this discussion for the vortex theory of motion, Newton ends this long presentation of the bucket with this claim: adherents of "the system"—again, he deliberately avoids Descartes's name—in which the planets are carried through the heavens in vortices should realize that the planets endeavor to recede from the axis of motion, which means that they exhibit true motion even though they are "relatively at rest" in the vortices. Once again, the tension Newton finds between Descartes's laws and his understanding of true motion lies just beneath the surface of his discussion.

It is true that Newton often eschewed metaphysical topics when engaging directly with his Cartesian predecessors and interlocutors, but in the second edition of the *Principia* (1713), he broached a number of such topics in what Voltaire famously called the "metaphysical appendix" to his text, the General Scholium. This edition of the text, masterfully edited by Newton's young supporter Roger Cotes, was written at the height of the calculus controversy involving Leibniz and his followers, but it would be simplistic to conclude that this general addition to the text's end was written solely to combat Leibniz's ideas. Indeed, the first sign that Descartes continued to be relevant to Newton occurs in the first sentence of the General Scholium: "The hypothesis of vortices is beset by many difficulties." It is true that Leibniz defended the vortex theory of planetary motion in a complex mathematical work published in the *Acta Eruditorum* in 1689 ("An essay on the causes of celestial motion"—Bertoloni Meli 1993). But the vortex theory originated with Descartes's *Principles* and continued to be defended by his supporters well into the eighteenth century (Aiton 1972; see Smith 2001 on Newton's arguments (p. 810) against the vortex theory). More importantly, several of Newton's more confusing claims in the General Scholium can be best understood in the light of his long-standing disagreements with the Cartesian metaphysics of the divine. After arguing against the vortex theory of the planetary system, Newton shifts topics by noting that this system could only have been arranged by a divine architect. That move, in turn, serves as his segué into a long discussion of the nature of God and of the divine relation to the mundane. Here we find an intriguing connection between the conception of absolute space discussed early in his text and Newton's most closely held, and most general, view of the divine:

> He is eternal and infinite, omnipotent and omniscient, that is, he endures from eternity to eternity, and he is present from infinity to infinity; he rules all things, and he knows all things that happen or can happen. He is not eternity and infinity, but eternal and infinite; he is not duration and space, but endures and is present. He endures always and is present everywhere, and by existing always and everywhere he constitutes duration and space. Since each and every particle of space is *always*, and each and every indivisible moment of duration is *everywhere*, certainly the maker and lord of all things will not be *never* or *nowhere*.
>
> (Newton 1999: 941).

The influence of Henry More on Newton is perhaps most evident here, for it was More who first contended that the Cartesian insistence that God is not extended led to the absurd conclusion that God is *nowhere*. Newton's Morean conception of God's presence within space may not have been a motive for arguing that space must be considered absolute under certain circumstances, but the connection between his view of the divine in the General Scholium and his discussion of space earlier in the text is clear enough. And of course, one cannot endorse this conception of the divine presence within the world if one adopts basic Cartesian metaphysical ideas.

Indeed, we find once again that Newton's Cartesian readers would not be impressed with his views. Why should they think that it is wise to conceive of God as present within space? Leaving aside the problem that for a Cartesian, space is identical to matter, which means that Newton could be accused of rendering God material, there is the remaining question of why even an adherent of absolute space would think that God is spatially present. For that view obviously contravenes centuries of theological and philosophical work leading up to the early modern period—surely God must be considered transcendent. Once again, Henry More's influence here is palpable. In his correspondence with Descartes in 1648–9 (Lewis 1953), which Newton avidly read, More insisted that Descartes had an internal reason within his own system to admit that God must be present in space in some sense, and therefore extended in as much as anything that is present in space must be considered extended. Briefly put, More argued as follows: if one admits, as Descartes surely does, that God can act on any object within the natural world, say to create a miracle, then one must admit that God's *power* is present to that object at its location in space; and if one admits that God's power is present at that location, then surely one must also concede that God's substance is present at that location, for God's power cannot as it were float free from God's substance or being. More pressed **(p. 811)** the point, but Descartes demurred, pleading that More focus on more mundane philosophical issues, such as the mind–body relation. Newton never forgot this exchange, and in the General Scholium, he famously sided with More over Descartes (Newton 1972: vol. 2, my translation): "God is the same God, always and everywhere. He is omnipresent, not only in power but also in substance: for power cannot subsist without substance [*Omnipraesens est non per virtutem solam, sed etiam per substantiam: nam virtus sine substantia subsistere non potest*]." For Newton, God's infinity and omnipotence mean that God must not only be omnipresent throughout space *in power*, but also *in substance*, for it would be a mistake to think that God's power can subsist without God's substance. The very being of God is present throughout infinite space. This is one of the most famous "metaphysical" views ever endorsed by Isaac Newton, and as we can see clearly, it arose from his long-standing disagreement with his great French predecessor.

It will not be lost on readers that Newton, following More, may also have been skeptical of Cartesian dualism on similar grounds. In one of the few published passages that takes a stand on what would ordinarily be considered a bread and butter metaphysical issue, the relation between a substance and its powers, Newton defends a broadly applicable claim. Without any qualification, he contends that "power cannot subsist without substance". If we take it to be obvious that the mind acts on the body, then it would seem to

follow that the mind has the power to act on the body. So the mind's power is present to the body at its location at a given time. This last claim would also appear to be obvious, and of course the problem for philosophers is to provide an interpretation of what the mind's "presence" actually means. One possible Cartesian view is this: since the mind is not extended, its power may be *present* in just the sense that the body responds to the mind's action (or thought) at a given location, since the body is extended and therefore located somewhere, but the mind itself remains non-located. A Cartesian may be loath to relinquish the idea that the mind is in fact present to the body. The mind–body union ensures that my mind is able to move my body, but not someone else's body; therefore, my mind's power is in fact present to my body, but not to your body, where "present" must have a sense involving the location of the power. So the mind's power is indeed located. And now Newton's general claim can be understood as anti-Cartesian: it is a mistake, he thinks, to take the mind's power to be located without the mind itself—or what he calls the mind's "substance"—being located as well. For otherwise, one must admit something Newton rejects, namely that a power of some kind could subsist without any substance bearing that power at the location of the power at a given time.

The Cartesian might retort: but this general Newtonian view cannot be right, for if we admit that the mind itself, and not merely the mind's power, is present in the sense of being located in space, then surely we must also admit that the mind is extended. Indeed, in his correspondence with Descartes, More is fully aware of this implication. And More does not hesitate to embrace it. Newton himself was also fully aware of the implication, and he too embraced it. In the General Scholium, he comes close to endorsing the view that all beings, including the mind and even God, are extended in some sense. He says, **(p. 812)** for instance, that God is present everywhere, and that it would be absurd to say (as the Cartesians do) that God is nowhere. That is consistent with the general claim that all beings are extended, but it does not explicitly present it. In his unpublished manuscript *De Gravitatione*, however, Newton is much more explicit: "No being exists or can exist which is not related to space in some way. God is everywhere, created minds are somewhere, and body is in the space that it occupies; and whatever is neither everywhere nor anywhere does not exist." But why does Newton—who always wrote very carefully, often after trying out various formulations in draft after draft—contend that a body is in the space that it "occupies" while the mind is "somewhere"? That implies that the mind does *not* occupy any space. This new implication is important to Newton's view: the mind is extended, for him, in the sense that the mind itself, and not merely the mind's power, is *present* within space. But it does not *occupy* space in the specific sense that the mind is not impenetrable, so unlike body, it does not disrupt other bodies, reflect light or sound, etc. If you like, the mind is extended but not physical. And the same can be said of God.

It might be a stretch to say that Newton's view allows him to solve the mind–body problem (cf. Gorham 2011), but perhaps he can avoid certain famous objections to Cartesian dualism, especially those of Princess Elisabeth (Shapiro 2007). One problem with dualism is that it seems to render the causal interaction of the mind and the body unintelligible, for how can a non-extended substance, which must lack a spatial location, act on or be acted upon by any substance that bears a spatial location? It seems obvious that accord-

ing to mechanist principles, for instance, a body can act on something only if it comes into contact with it, and Descartes's view rules out the possibility that the body can be in contact with the mind. Newton solves that problem: the mind itself, in its very substance, is present within space, so it can be in contact with the body, at least in the sense that it can be located where the body is located. Of course, it isn't clear whether a mechanist could endorse the idea that a non-impenetrable substance can properly be said to be in contact with anything. Certainly, it's not a standard kind of mechanist contact, meaning causal interaction through impulse or the like. The honest answer to the question of how Newton might react to this further point is this: Newton was no mechanist. He was perfectly willing to say that casual interactions can, for example, involve forces whether or not there is contact between the bodies impressing the forces on one another.

This discussion leads to Newton's final, decisive break with the entire Cartesian tradition. For if Cartesians stood for anything in the early modern period, it was for a mechanist approach to understanding nature. In that sense, even Leibniz was a qualified Cartesian, and he often bemoaned Newton's blatant disregard for what he regarded as the profound seventeenth-century consensus that the mechanical philosophy was the best approach for understanding the natural world. Leibniz was not alone: he could count everyone from Boyle and Locke to Descartes and Huygens amongst his mechanical brethren. But not Newton. His anti-mechanist, or perhaps post-mechanist, approach to understanding nature was built into the very fabric of his thought. The laws of nature in Newton's telling, for example, have at least one profound difference from the first two laws presented by Descartes: changes in states of motion are due to what he calls (p. 813) a "vis impressa". And an impressed force, in turn, is defined as "the action exerted on a body to change its state" of motion. Two aspects of this notion are crucial: first, Newton says that an impressed force consists "solely" in the action on a body and "does not remain" in the body once that action has ceased; and, second, we quickly learn that in addition to impact cases, gravity and magnetism also count as impressed forces. The mechanist fear that Newton has opened a philosophical can of worms in these early passages is then confirmed in the famous argument, presented in the first seven propositions of Book III of *Principia mathematica*, that all material bodies act on one another through the force of gravity. Newton does not hesitate to say, for instance, that Jupiter impresses the force of gravity on its satellites and thereby maintains their planetary orbits. We are very far, indeed, from the plenum and the vortices that populate the mechanist Cartesian world.

One might detect a tension in the Newtonian universe. On the one hand, we learn in the General Scholium that a power cannot subsist without a substance in some deep and general sense; on the other, we find out that bodies can impress forces on one another across vast distances of potentially empty space. Why should the mind, or God, have to be present to a body in order to act on it when Jupiter does not? Surely, this constraint on God ought to apply to all bodies!

One potential reply, which is not terribly satisfying, is that Newton himself was quite worried about the fact that his theory of universal gravity could be understood as involving action at a distance amongst natural bodies. In a famous letter to Bentley from 1693, for

instance, he seems to say that action at a distance is absurd. This issue has been the subject of long-standing debates in the scholarly literature (Janiak 2008; Ducheyne 2011; Henry 2014). Happily, there is a second, more satisfying, reply to the idea that Newton's thought contains a deep tension. The reply indicates again how Newton breaks from a Cartesian framework. According to that framework, it seems pretty clear that anything within nature must be understood as: a substance; a property of some substance; or a mode of some property. For instance, my mind is a substance, its essential feature is thought, and my idea of the Pythagorean theorem is a mode of my mind. Hence if any Cartesian were to think about forces, she would want to think of them as what I will call *powers* in this specific sense: a power is a property or a mode of some substance, one that can be activated in certain circumstances. Newton's notion of an impressed force, it seems, does not fit this model: as he says, the force is not a power in the sense of being a property or mode of some substance; it is an action that does not remain anywhere after the action ceases. Whereas Cartesian forces are *powers*, Newtonian forces are *actions*. They fall into two distinct metaphysical kinds. Of course, it could very well be, for example, that if Jupiter impresses the force of gravity on its moon Titan, then we should conclude that Jupiter has a certain power, say a power to accelerate Titan. The point is that such a power would be a property of Jupiter, but the force it impresses on Titan is *not* a property of Jupiter—it is the *action of Jupiter on Titan*. If Titan were to disappear, then Jupiter's action would cease. The suggestion, then, is that when Newton speaks of the power of a substance in the General Scholium, we should not read him as speaking of impressed forces. He is speaking of powers as properties of objects.

(p. 814) This distinction between powers and forces is not *ad hoc*. After all, it would be odd for Newton to speak of impressed forces in the General Scholium when discussing God, because such forces, by definition, are actions that change the state of motion of a body. And God does not act on the world merely by changing bodily states of motion. Indeed, God's primary causal interaction with the world is to create things, not to move them around! In creating a human being from dust, for instance, God obviously did not merely accelerate some bodies. So in the first instance, we should understand Newton as discussing God's power, and not as discussing forces. Moreover, if Newton were discussing impressed forces in the General Scholium, it would be odd for him to conclude that God must be spatially omnipresent if God is to be able to act anywhere in the world. After all, Jupiter seems to have no trouble in being located in one place while acting on distant Titan. Instead, Newton is discussing what he takes to be a basic feature of the powers of a substance.

It might be a stretch to conclude from all of this that Newton separated his "physics", where forces and accelerations are the focus, from his "metaphysics", where powers and substances are discussed. He wrote about them in the same book, and he did not explicitly signal any clear separation between them; we have to dig through his work to find it. What does seem fair to say, however, is that in treating forces in one way, and powers in another, Newton was not merely disagreeing with Descartes on various kinds of philosophical or substantive grounds. He was also implicitly signaling that unlike Descartes's *Principles*, which provided a unified account of nature in which metaphysical views serve

as the foundation for physical ones, Newton's *Principles* would have no such foundation. As it turns out, the notion that physics, or the science of nature, can proceed on its merry way without any metaphysical foundation became one of the most intensely debated topics of the eighteenth century. That notion is the legacy of Newton's engagement with Descartes.

References

Aiton, E. J. (1972), *The Vortex Theory of Planetary Motions*. Amsterdam: Elsevier.

Bertoloni Meli, Domenico (1993), *Equivalence and Priority: Newton vs. Leibniz*. Oxford: Oxford University Press.

Domski, Mary (2003), "The Constructible and the Intelligible in Newton's Philosophy of Geometry", *Philosophy of Science* 70: 1114–24.

Ducheyne, Steffen (2011), "Newton on Action at a Distance and the Cause of Gravity", *Studies in History and Philosophy of Science* 42: 154–9.

Gorham, Geoffrey (2011), "How Newton Solved the Mind–Body Problem", *History of Philosophy Quarterly* 28: 21–44.

Guicciardini, Niccolò (2009), *Isaac Newton on Mathematical Certainty and Method*. Cambridge, MA: MIT Press.

Heilbron, J. L. (1982), *Elements of Early Modern Physics*. Berkeley: University of California Press.

Henry, John (2014), "Newton and Action at a Distance Between Bodies: A Response to Andrew Janiak's 'Three concepts of cause in Newton' ", *Studies in History and Philosophy of Science* 47: 91–7.

(p. 815) Janiak, Andrew (2008), *Newton as Philosopher*. Cambridge: Cambridge University Press.

Lewis, Geneviève, ed. and trans. (1953), *Descartes: correspondance avec Arnauld et Morus, texte Latin et traduction*. Paris: Vrin.

Newton Isaac (1962), *Unpublished Scientific Papers of Isaac Newton*, ed. and trans. Marie Boas Hall and A. R. Hall. Cambridge: Cambridge University Press.

Newton, Isaac (1972), *Philosophiae naturalis principia mathematica*, ed. I. B. Cohen and Alexandre Koyré, with Anne Whitman. Cambridge, MA: Harvard University Press.

Newton, Isaac (1999), *The Principia*, ed. and trans. I. B. Cohen and Anne Whitman. Berkeley: University of California Press.

Newton, Isaac (2014), *Philosophical Writings*, ed. Andrew Janiak. Cambridge: Cambridge University Press.

Shapiro, Lisa, ed. and trans. (2007), *The Correspondence between Princess Elisabeth of Bohemia and René Descartes*. Chicago: University of Chicago Press.

Smith, George (2001), “The Newtonian Style in Book II of the *Principia*”, in Jed Buchwald and I. Bernard Cohen (eds.), *Isaac Newton’s Natural Philosophy*. Cambridge, MA: MIT Press, 249–98.

Andrew Janiak

Duke University

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